

## ST-01 : GENERAL

1. Classification of Railway servants Categories under HOER are\_\_\_\_\_ ( )  
a. 3                                      b. 2                                      c. 4                                      d. 1
2. In HOER an employee in confidential capacity comes under ( )  
a. Excluded      b. Intensive      c. Continuous      d. Essential Intermittent
3. An employee in essential intermittent category is ( )  
a. ASM      b. ESM.                      c. WTM      d. Gateman
4. In continuous category an employee working hours is ( )  
a. 48hrs/week      b. 54hrs/week      c. 32hrs/week      d. 60hrs/week
5. Running staff comes under which category? ( )  
a. Excluded      b. Intensive      c. Continuous      d. Essential Intermittent
6. Max. working hours/week for an employee in essential intermittent category. ( )  
a. 48hrs/week      b. 54hrs/week      c. 72hrs/week      d. 42hrs/week
7. Attenders in waiting rooms comes under which category ( )  
a. Excluded                      b. intensive                      c. essential intermittent      d. Intensive
8. An employee works 42 hours per week and with 30 consecutive hours of rest comes under ( )  
a. Excluded                      b. Intensive                      c. Essential intermittent      d. Continuous
9. SF-1 (Standard Form) is issued to an employee ( )  
a. To place under suspension                      b. revocation of suspension  
c. both a & b    d. None
10. SF-8 is for in DAR is ( )  
a. Issuing a charge sheet in case of common proceedings  
b. For appointment of an enquiry officer  
c. For appointment of a presenting officer.  
d. Both b & c.

11. SF-5 is proposed to take up an employee for imposition of ( )  
a. Major penalty      b. Minor penalty      c. Revocation      d. Suspension.
12. Who can avail paternity leave in Indian Railways? ( )  
a. Male employee                                      b. Women employee  
c. both a & b    d. trainee employee
13. Censure is \_\_\_\_\_penalty. ( )  
a. Major                      b. Minor                      c. both a & b                      d. none
14. SF-11 is \_\_\_\_\_penalty. ( )  
a. Minor                      b. Major                      c. both a & b                      d. none
15. \_\_\_\_\_no. of privilege passes/year for non gazetted employee having ( )  
more than 5 years of service  
a. 1                                      b. 2                                      c. 3                                      d. 4
16. Maternity leave is granted for\_\_\_\_\_days. ( )  
a. 180 days                      b. 90 days                      c. 270 days                      d. 360 days
17. No. of stipendiary leaves for an apprentice in IR. ( )  
a. 8                                      b. 10.                                      c. 16                                      d. 15
18. No of casual leaves for an railway employee of open line in a year. ( )  
a. 8                                      b. 10                                      c. 11                                      d. 15.
19. Hindi divas is on ( )  
a. 22 August                      b. 14 September                      c. 12 June                      d. 14 February
20. How many languages is incorporated in 8th schedule? ( )  
a. 8                                      b. 12                                      c. 16                                      d. 22
21. Which region is Non-speaking Hindi ( )  
a. A region                      b. B region                      c. C region                      d. both a & b
22. No's of PTO's can be availed by a Railway employee in a year is ( )  
a. 3                                      b. 4                                      c. 2                                      d. 6
23. A Railway employee maximum how many LAP's can be accumulated in his ( )  
service  
a. 50                                      b. 200                                      c. 250                                      d. 300
24. Child care leave (CCL) is granted for how many years? ( )  
a. 1 year                                      b. 2 years                                      c. 3 years                                      d. 4 years
25. Per year how many LAP leaves is credited into employee account? ( )  
a. 15 days                                      b. 20 days                                      c. 25 days                                      d. 30 days

26. Per year how many LHAP leaves is credited into employee account? ( )  
 a. 15 days                      b. 20 days                      c. 25 days                      d. 30 days
27. Duty pass is issued in the form of ( )  
 a. metal pass                      b. card pass                      c. check pass                      d. all
28. What are the night duty hours ( )  
 a. 10 PM-6AM                      b. 9 PM-5AM                      c. 11PM-6AM                      d. 12PM-6AM
29. Time limit for submission of claim of travelling allowance (TA) is \_\_\_ days succeeding the date of completion of journey ( )  
 a. 30 days                      b. 60 days                      c. 90 days                      d. 120 days
30. Who is the competent authority to approve 3<sup>rd</sup> chance to ward / widow for appointment on compassionate grounds ( )  
 a. GM                      b. AGM                      c. PCPO                      D. DRM

A N S W E R S   K E Y

1	2	3	4	5	6	7	8	9	10
c	a	d	a	c	c	c	b	a	c
11	12	13	14	15	16	17	18	19	20
a	a	b	a	c	a	c	b	b	d
21	22	23	24	25	26	27	28	29	30
c	b	d	b	d	b	d	a	b	a

## ST-03a : MEASURING INSTRUMENTS & PORTABLE HAND TOOLS

- 1) \_\_\_\_\_ test can be performed with megger ( )  
a. Earth Fault      b. Open circuit      c. Short circuit      d. All
- 2) Current can be measured directly without disconnecting the circuit with \_\_\_\_\_ meter ( )  
a. Voltmeter      b. Ammeter      c. Clip-on-meter      d. Megger
- 3) Voltmeter is to be connected in \_\_\_\_\_ to the circuit. ( )  
a. Series      b. Parallel      c. Series-parallel      d. none
- 4) Ammeter is to be connected in \_\_\_\_\_ to the circuit. ( )  
a. Series      b. Parallel      c. Series-parallel      d. none
- 5) Insulation resistance of signaling cable should not be less than \_\_\_\_\_ per KM. ( )  
a. 5 MΩ      b. 10 MΩ      c. 2 MΩ      d. 10 Ω
- 6) Earth leakage detector can be used for \_\_\_\_\_ ( )  
a. ON line meggering      b. OFF line meggering  
c. both a, b      d. None
- 7) Clip on meter is used for measuring \_\_\_\_\_ in the circuit. ( )  
a. current without disconnection of links      b. voltage  
c. resistance      d. None
- 8) ELD measures cable \_\_\_\_\_ ( )  
a. voltage      b. current      c. resistance      d. Insulation leakage
- 9) Earth tester measures \_\_\_\_\_ ( )  
a. voltage      b. earth resistance  
c. cable resistance      d. Insulation leakage
- 10) Signaling cables will be measured with \_\_\_\_\_ DC megger. ( )  
a. 500v      b. 100v      c. 200v      d. 110v
- 11) Quad cable will be measured with \_\_\_\_\_ DC megger. ( )  
a. 500v      b. 100v      c. 200v      d. 110v
- 12) Internal resistance of the Ammeter is \_\_\_\_\_ ( )  
a. Low      b. High      c. Infinity      d. zero
- 13) Internal resistance of voltmeter is \_\_\_\_\_ ( )  
a. zero      b. Low      c. High      d. Infinity
- 14) For measuring attenuation loss in Quad cable \_\_\_\_\_ instrument is used ( )  
a. TMS kit      b. Cross talk measuring set  
c. Megger      d. OTDR

- 15) \_\_\_\_\_ instrument is used to check continuity of CAT cable ( )  
 a. **TMS kit** b. LAN tester  
 c. Megger d. OTDR
- 16) \_\_\_\_\_ meter is used to measure power loss in OFC ( )  
 a. **Optical power meter** b. LAN tester  
 c. Megger d. OTDR
- 17) For measuring attenuation loss in OFC cable \_\_\_\_\_ instrument is used ( )  
 a. TMS kit b. Cross talk measuring set  
 c. Megger **d. OTDR**
- 18) To Increase the range of volt meter, resistance to be added in \_\_\_\_\_ ( )  
 a. Series b. Parallel  
 c. Shunt d. Series – Parallel
- 19) To Increase the range of Ammeter, resistance to be added in \_\_\_\_\_ ( )  
 a. Series b. Parallel  
 c. Series – Parallel d. None
- 20) Relay contact resistance is measured with \_\_\_\_\_ meter ( )  
 a. Multi meter b. Earth Tester  
 c. Megger d. Micro Ohm meter
- 21) Micro Ohm Meter will have \_\_\_\_\_ No. of probes ( )  
 a. 1 b. 2 c. 3 d. 4
- 22) For working of ELD \_\_\_\_\_ supply has to be connected to the main terminal ( )  
 a. 24v DC b. 110v DC  
 c. 110v AC d. 24v AC
- 23) Resistance can be measured with \_\_\_\_\_ ( )  
 a. Earth Tester b. Megger  
 c. Micro Ohm meter d. All
- 24) Internal source is compulsory for \_\_\_\_\_ meter ( )  
 a. Analog Ammeter b. Analog Volt meter  
 c. Ohm meter d. None
- 25) What happens to the circuit when volt meter is connected in series ( )  
 a. Fuse Blows b. Nothing will happen  
 c. Current becomes zero d. Voltage becomes zero

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
d	c	b	a	a	c	a	d	b	a
11	12	13	14	15	16	17	18	19	20
b	a	c	a	b	a	d	a	b	d
21	22	23	24	25					
d	c	d	c	c					

## ST-04 : POWER EQUIPMENTS, CELLS, BATTERY & IPS

- 1) Inverter gives \_\_\_\_\_ ( )  
(a) AC output (b) DC output  
(c) Impedance matching (d) None
- 2) The specific gravity of charged cell is \_\_\_\_ ( )  
(a) 1180 (b) 1190 (c) 1240 (d) 1220
- 3) In \_\_\_\_ mode charging, O/P of charger is slightly more than the cell voltage. ( )  
(a) Initial (b) Boost (c) Float (d) trickle
- 4) Maximum permissible load on 200AH cell is \_\_\_\_\_ ( )  
(a) 20A (b) 12A (c) 10A (d) 24A
- 5) Trickle charging is given to cells which are in \_\_\_\_\_ condition. ( )  
(a) discharged (b) charged (c) idle (d) dead
- 6) Maximum permissible charging current for 200 AH battery is ( )  
(a) 10 A (b) 20 A (c) 2 A (d) No maximum
- 7) End point voltage of the lead acid cell is \_\_\_\_\_ ( )  
(a) 1.85 V (b) 1.9V (c) 2.0V (d) 2.2V
- 8) In Boost charging, terminal voltage of cell is set to \_\_\_\_\_ volt/cell ( )  
(a) 2.2V (b) 2.3V (c) 2.4V (d) 2.7V
- 9) In float charging, terminal voltage of cell is set to \_\_\_\_\_ volt/cell ( )  
(a) 2.15V (b) 2.0V (c) 2.4V (d) 2.7V
- 10) In initial charging terminal voltage of cell is set to \_\_\_\_\_ volt/cell ( )  
(a) 2.25 V (b) 2.3V (c) 2.4V (d) 2.7V
- 11) Output of SMR is \_\_\_\_\_ ( )  
(a) 110v AC (b) 110v DC (c) 230vAC (d) 230v DC
- 12) Input of SMR is \_\_\_\_\_ ( )  
(a) 110v AC (b) 110v DC (c) 230vAC (d) 230v DC
- 13) Inverter converts \_\_\_\_\_ ( )  
(a) AC to AC (b) AC to DC (c) DC to AC (d) DC to DC
- 14) DC to DC converter converts \_\_\_\_ ( )  
(a) AC to AC (b) AC to DC (c) DC to AC (d) DC to DC
- 15) Indication that appears when SMR switches from Boost mode to Float mode is ( )  
(a) system shut down (b) stop DG set  
(c) call S & T staff (d) emergency start DG set
- 16) Electrolyte level should be \_\_\_\_\_ above the plate level ( )  
(a) 12mm -15mm (b) 6 mm – 8 mm  
(c) up to brim (d) Just above the plates

- 17) In IPS system inverters are configured with \_\_\_\_\_ standby ( )  
 (a) cold (b) warm (c) hot (d) none
- 18) In IPS system TFRs are fed through \_\_\_\_\_ ( )  
 (a) DC to DC converters (b) Inverters  
 (c) SMRs (d) CVT
- 19) Capacity of cell is measured in ( )  
 (a) AC (b) AH (c) DC (d) None
- 20) Specific gravity of charged cell is \_\_\_\_\_ ( )  
 (a) 1200-1220 (b) 1180-1190 (c) 1280 -1300 (d) None
- 21) Specific gravity of discharged cell is \_\_\_\_\_ ( )  
 (a) 1200 (b) 1180 (c) 1280 (d) None
- 22) Specific gravity is measured with \_\_\_\_\_ ( )  
 (a) Voltmeter (b) Megger (c) Hydrometer (d) None
- 23) Voltage of charged cell is \_\_\_\_\_ ( )  
 (a) 2.1 V (b) 1.85 V (c) 1.2 V (d) None
- 24) Voltage of discharged cells is \_\_\_\_\_ ( )  
 (a) 2.1 (b) 1.85 V (c) 2.2 V (d) None
- 25) Resistance of earth value connected to IPS shall not exceed ( )  
 (a) 10 Ohms (b) 1 Ohm (c) zero Ohms (d) None
- 26) Electrolyte solution in a secondary LA cell is ( )  
 (a) Sulphuric Acid  
 (b) Sulphuric Acid and Battery grade Distilled water  
 (c) Battery grade Distilled water  
 (d) None of the above
- 27) Purpose of IPS is to ( )  
 (a) Integrate supply required for signaling (b) avoid blank signal  
 (c) achieve redundancy in power supply for signaling (d) All the above
- 28) At 70% DOD of Battery, The output of \_\_\_\_\_ is cut off ( )  
 (a) Inverter (b) DC-DC converters  
 (c) Status Monitoring Panel (d) CVT
- 29) In IPS when Battery voltage falls below 98V DC, DC supply is cut off to \_\_\_\_\_ ( )  
 (a) ACDP (b) DCDP  
 (c) a & b (d) None of the above
- 30) Capacity of cell depends upon ( )  
 (a) No. of plates inside the cell (b) Thickness of plates inside the cell  
 (c) Area of plates inside the cells (d) All the above



- 31) In IPS, Signal lamp circuit is normally fed by output of ( )  
 (a) Inverter (b) CVT for signals  
 (c) CVT for tracks (d) none of the above
- 32) Stop DG set audio-visual alarm generates whenever FRBC/SMR change over from ( )  
 (a) Float mode to Boost mode (b) Boost mode to Float mode  
 (c) Both the above (d) None of the above
- 33) Output of CVT is \_\_\_\_\_ ( )  
 (a) 110 V AC (b) 230 V AC (c) 110 V DC (d) None
- 34) Internal resistance of a secondary cell shall not be more than ( )  
 a) 2 Ohms b) 0.5 Ohms c) 20 Ohms d) None
- 35) Codal life of a Lead acid secondary cell is ( )  
 a) 2 years b) 5 years c) 8 years d) None
- 36) Efficiency of a secondary cell can be expressed in ( )  
 a) Current b) Volt c) Watt Hour d) AH or V or WH efficiency
- 37) Earth resistance permitted for IPS is ( )  
 a) 2 Ohms b) 0.5 Ohms c) 20 Ohms d) None
- 38) Which of the following is NOT associated with IPS ( )  
 a) CSU b) LVDS c) SMP d) SSD
- 39) Inverters in IPS are connected in ( )  
 a) Warm standby mode b) Hot standby mode  
 c) Both d) None
- 40) Auto/Manual change over switch in IPS shall normally be placed in\_ Position( )  
 a) Inverter 1 b) Inverter 2 c) CVT d) None
- 41) Current is absorbed in the cell from the charging circuit, and the direction of the current in the cell is \_\_\_\_\_ ( )  
 a) From positive plate to negative plate b) From negative plate to positive plate  
 c) Can be any direction d) None
- 42) When a cell is on load, the current is given out by the cell ( )  
 a) From positive plate to negative plate b) From negative plate to positive plate  
 c) Can be any direction d) None
- 43) Direction of current within the cell when the cell is discharging is ( )  
 a) From positive plate to negative plate b) From negative plate to positive plate  
 c) Can be any direction d) None
- 44) Battery charger shall be suitable for satisfactory operation with the Input Voltage range of ( )  
 a) 220V to 270V AC b) 230 V AC  
 c) 160V to 270V AC d) 110 V AC



## ST-05 : BASIC ELECTRICITY AND MAGNETISM

- 1) Resultant resistance will increase when resistors are connected in \_\_\_\_\_ ( )  
(a) Series (b) parallel (c) series and parallel (d) all
- 2) Resultant resistance will decrease when resistors are connected in \_\_\_\_\_ ( )  
(a) Series (b) parallel (c) series and parallel (d) all
- 3) Condensers of same capacity are connected in parallel, the resultant value ( )  
(a) becomes double (b) become half  
(c) will not change (d) become zero
- 4) Condensers of same capacity are connected in series, the resultant value ( )  
(a) becomes double (b) become half  
(c) will not change (d) become zero
- 5) The unit for capacitance is \_\_\_\_\_ ( )  
(a) Volts (b) Newton (c) Coulomb (d) Farads
- 6) 50  $\Omega$  & 50  $\Omega$  resistors are connected in series the resultant Resistance is ( )  
(a) 75  $\Omega$  (b) 50  $\Omega$  (c) 100  $\Omega$  (d) 25  $\Omega$
- 7) 50  $\Omega$  & 50  $\Omega$  resistors are connected in parallel the resultant Resistance is ( )  
(a) 50  $\Omega$  (b) 100  $\Omega$  (c) 25  $\Omega$  (d) 150  $\Omega$
- 8) To measure current in a circuit, Ammeter is connected in \_\_\_\_\_ ( )  
(a) Parallel (b) Series (c) Series & Parallel (d) None
- 9) To measure voltage in a circuit, Voltmeter is connected in \_\_\_\_\_ ( )  
(a) Parallel (b) Series (c) Series & Parallel (d) None
- 10) To measure current in a circuit, circuit need not be disconnected if \_\_\_\_\_  
is used ( )  
(a) Ammeter (b) Multimeter (c) Clip-on meter (d) None
- 11) \_\_\_\_\_ converts AC to DC. ( )  
(a) Oscillator (b) Filter (c) Rectifier (d) Inverter
- 12) In bridge rectifier \_\_\_\_\_ no. of diodes are used. ( )  
(a) 1 (b) 2 (c) 3 (d) 4
- 13) \_\_\_\_\_ will not change in Transformer ( )  
(a) Voltage (b) Current (c) Resistance (d) Frequency
- 14) In step up transformer the voltage on primary side is \_\_\_\_\_ the voltage on  
secondary side ( )  
(a) More than (b) Less than (c) Equal to (d) None

- 15) In step down transformer the voltage on primary side is \_\_\_\_\_ the voltage on secondary side ( )  
 (a) More than (b) Less than (c) Equal to (d) None
- 16) In 1:1 transformer the voltage on primary side is \_\_\_\_\_ the voltage on secondary side ( )  
 (a) More than (b) Less than (c) Equal to (d) None
- 17) Ohm's Law is \_\_\_\_\_ ( )  
 (a)  $V = I R$  (b)  $I = V / R$  (c)  $R = V / I$  (d) All
- 18) In an electrical circuit the Power = \_\_\_\_\_ ( )  
 (a)  $V \times I$  (b)  $I^2 R$  (c)  $V^2 / R$  (d) All
- 19) In an electrical circuit at constant resistance, if Voltage is increased, Current ( )  
 (a) decreases (b) increases (c) remains constant (d) None
- 20) In an electrical circuit at constant resistance, if Voltage is decreased, Current ( )  
 (a) decreases (b) increases (c) remains constant (d) None
- 21) In an electrical circuit at constant Voltage, if Resistance is decreased, Current ( )  
 (a) decreases (b) increases (c) remains constant (d) None
- 22) In an electrical circuit at constant Voltage, if Resistance is increased, Current ( )  
 (a) decreases (b) increases (c) remains constant (d) None
- 23) The unit for Power is ( )  
 (a) Newton (b) Watts (c) Joules (d) Hertz
- 24) The unit for frequency is ( )  
 (a) Newton (b) Watts (c) Joules (d) Hertz
- 25) Transformer works on \_\_\_\_\_ principle ( )  
 (a) Mutual induction (b) Electrostatic induction  
 (c) Self induction (d) None
- 26) In a transformer there will be \_\_\_\_\_ between AC voltages of primary coil and secondary coil ( )  
 (a) decrease in frequency (b) increase in frequency  
 (c) no change in frequency (d) None
- 27) In every magnet \_\_\_\_\_ number of poles present ( )  
 (a) 3 (b) 2 (c) 4 (d) 6
- 28) When North pole of a magnet brought nearer to South pole of other magnet ( )  
 (a) Repels (b) Attracts  
 (c) Neither attracts nor repels (d) None

- 29) When South pole of a magnet brought nearer to South pole of other magnet ( )  
 (a) Repels (b) Attracts  
 (c) Neither attracts nor repels (d) None
- 30) An electrical generator converts ( )  
 (a) Electrical energy into Mechanical energy  
 (b) Mechanical energy into Electrical energy  
 (c) Electrical energy into Sound energy  
 (d) Sound energy into Electrical energy
- 31) In a DC generator \_\_\_\_\_ occurs ( )  
 (a) copper losses (b) Magnetic losses  
 (c) Mechanical losses (d) All the above
- 32) According to Faraday's Laws of Electromagnetic induction, whenever a conductor cuts magnetic flux \_\_\_\_\_ is produced ( )  
 (a) induced e.m.f. (b) Heat (c) Light (d) None
- 33) Electrical energy may be converted into \_\_\_\_\_ energy ( )  
 (a) Mechanical (b) Sound (c) Chemical (d) All
- 34) In a stabilizer, if input voltage increases within the range the output voltage ( )  
 (a) increases (b) decreases (c) remains constant (d) none
- 35) In a stabilizer, if input voltage decreases within the range the output voltage ( )  
 (a) increases (b) decreases (c) remains constant (d) none
- 36) What will be the current in a QN1 relay of coil resistance 400 ohms is operated with 24 V DC ( )  
 (a) 60 mA (b) 50 mA (c) 40 mA (d) 30 Ma
- 37) What will be the current in a QNA1 relay of coil resistance 208 ohms is operated with 24 V DC ( )  
 (a) 80 mA (b) 90 mA (c) 100 mA (d) 115 mA
- 38) \_\_\_\_\_ is used to protect electrical/electronic equipments from high currents ( )  
 (a) Fuse (b) Resistor (c) Inductor (d) None
- 39) The Power factor is ( )  
 (a) the ratio of true(working) power to apparent power  
 (b) the ratio of apparent power to true power  
 (c) product of true power and apparent power  
 (d) None
- 40) Capacitive reactance  $X_c =$  ( )  
 (a)  $2\pi fc$  (b)  $1 / 2\pi fc$  (c)  $2\pi fL$  (d)  $1 / 2\pi fL$

- 41) Inductive reactance  $X_L =$  ( )  
 (a)  $2\pi fc$  (b)  $1 / 2\pi fc$  (c)  $2\pi fL$  (d)  $1 / 2\pi fL$
- 42) Capacity of the transformer is measured in\_\_\_\_\_ ( )  
 (a) Volts (b) Amperes (c) VA (d) hertz
- 43) \_\_\_\_\_ shall be given to transformer ( )  
 a) DC Voltage only (b) AC Voltage only  
 (c) Either AC or DC voltages (d) None
- 44) Turns ratio of the transformer = ( )  
 (a)  $N_1 / N_2 = V_1 / V_2 = I_2 / I_1$  (b)  $N_1 / N_2 = V_2 / V_1 = I_2 / I_1$   
 (c)  $N_2 / N_1 = V_1 / V_2 = I_2 / I_1$  (d)  $N_1 / N_2 = V_1 / V_2 = I_1 / I_2$
- 45) The transformer will not work for DC voltages due to ( )  
 (a) constant voltage (b) constant current  
 (c) constant resistance (d) constant flux
- 46) CVT / AVR works in\_\_\_\_\_ region ( )  
 (a) active (b) magnetic saturation (c) passive (d) cut-off
- 47) CVT means ( )  
 (a) Constant voltage transformer (b) current voltage transformer  
 (c) Continuous variable transformer (d) None
- 48) In capacitor filter, as the load current increases then ripple will\_\_\_\_\_ ( )  
 (a) increase (b) decrease (c) same (d) nil
- 49) In a bridge rectifier, how many diodes will conduct in a half cycle ( )  
 (a) 1 diode (b) 2 diodes (c) 3 diodes (d) 4 diodes
- 50) Resistance x Capacitance = ( )  
 (a) Charging time of capacitor (b) Discharging time of capacitor  
 (c) Both a & b (d) None
- 51) For 230 V AC, 50 Hertz the time period of each half cycle is\_\_\_\_\_ ( )  
 (a) 20 m sec (b) 30 m sec (c) 10 m sec (d) 40 m sec
- 52) Forward voltage drop of a silicon diode is\_\_\_\_\_volts ( )  
 (a) 3.7 (b) 1.7 (c) 2.7 (d) 0.7
- 53) Zener diode gives\_\_\_\_\_voltage ( )  
 (a) regulated (b) varying voltage (c) both a & b (d) None
- 54) Zener diode works in\_\_\_\_\_ region ( )  
 a) active (b) passive (c) cut-off (d) reverse breakdown

- 55) For inductive load, power factor is ( )  
 (a) leading (b) lagging (c) 0.6 (d) 0.7
- 56) For capacitance load, power factor is ( )  
 (a) leading (b) lagging (c) 0.6 (d) 0.7
- 57) \_\_\_\_\_converts DC voltage to AC voltage ( )  
 (a) Rectifier (b) Inverter (c) Amplifier (d) Transformer
- 58) An Opto coupler converts\_\_\_\_\_ ( )  
 (a) Electrical energy to light energy & vice versa (b) Electrical energy to sound  
 (c) Electrical energy to mechanical energy (d) Electrical energy to chemical energy
- 59) The main application of the Opto coupler is to\_\_\_\_\_ ( )  
 (a) Isolate two circuits (b) combine two circuits  
 (c) Combine three circuits (d) combine four circuits
- 60) Capacitor stores\_\_\_\_\_energy ( )  
 (a) mechanical (b) electrical (c) light (d) chemical

### ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
a	b	a	b	d	c	c	b	a	c
11	12	13	14	15	16	17	18	19	20
c	d	d	b	a	c	d	d	b	a
21	22	23	24	25	26	27	28	29	30
b	a	b	d	a	c	b	b	a	b
31	32	33	34	35	36	37	38	39	40
d	a	d	c	c	a	d	a	a	b
41	42	43	44	45	46	47	48	49	50
c	c	b	a	d	b	a	a	b	c
51	52	53	54	55	56	57	58	59	60
c	d	a	d	b	a	b	a	a	b

## ST-06 : SAFETY IN TRAIN OPERATION, S O D & D M

- 1) Maximum height above rail level of any part of signal gear provided between rails of track is\_\_\_\_ ( )  
(a) 64 mm (b) 2135 mm (c) 1676 mm (d) none
- 2) In all new yards, we must follow ( )  
(a) Existing works (b) New works (c) both (d) none
- 3) Maximum height of signaling gear above rail level for a width of 1600 mm in BG inside of the track\_\_\_\_\_ ( )  
(a) 64 mm (b) 2135 mm (c) 6250 mm (d) none
- 4) As per Revised Schedule of dimensions, New works includes ( )  
(a) Additions of new lines / structure (b) gauge conversion  
(c) Doubling (d) all
- 5) Minimum horizontal distance of a Point machine in BG from CLOT ( )  
(a) 64 mm (b) 2135 mm (c) 1600 mm (d) 2360 mm
- 6) Red aspect of signal should be at a height of\_\_\_\_from above the rail level. ( )  
(a) 3355 mm (b) 3650 mm (c) 3555 mm (d) 4650 mm
- 7) Minimum horizontal distance of a Location Box in BG from CLOT ( )  
(a) 1905 mm (b) 2135 mm (c) 1600 mm (d) 2360 mm
- 8) Minimum horizontal distance of a TLJB in BG from CLOT ( )  
(a) 1905 mm (b) 2135 mm (c) 1600 mm (d) 2360 mm
- 9) The nearest part of the signal post from the centre of track for a signal with horizontal route ( )  
(a) 2.135m (b) 2.84 m (c) 2.36m (d) 2.8m
- 10) Minimum clearance between toe of open switch and stock rail in new works ( )  
(a) 95 mm (b) 115 mm (c) 112 mm (d) 118 mm
- 11) The minimum clearance required from center of track to the signal post is\_\_\_\_( )  
(a) 1600 mm (b) 2135 mm (c) 1905 mm (d) 2360 mm
- 12) When point is under disconnection, stop signal governing the point\_\_\_\_\_ ( )  
(a) need not kept at ON (b) need kept at ON  
(c) optional (d) not compulsory



- 13) The distance from nearest wire transmission to the CLOT in BG is\_\_\_\_\_ ( )  
 (a) 1.9 m (b) 2.5 m (c) 3 m (d) 6m
- 14) Minimum horizontal distance of a Gate post in BG from CLOT ( )  
 (a) 4 m (b) 5 m (c) 6 m (d) 3 m
- 15) Minimum horizontal distance of a Gate lodge in BG from CLOT ( )  
 (a) 4 m (b) 5 m (c) 6 m (d) 3 m
- 16) Minimum horizontal distance of a Gate lodge in BG from edge of road ( )  
 (a) 4 m (b) 5 m (c) 6 m (d) 8 m
- 17) Minimum horizontal distance of a Height guage from CLOT ( )  
 (a) 4 m (b) 5 m (c) 6 m (d) 8 m
- 18) Normal implantation of OHE mast (single OHE) from CLOT ( )  
 (a) 2.5 m (b) 2.8 m (c) 3 m (d) 2.36 m
- 19) Normal implantation of OHE mast (more than one OHE) from CLOT ( )  
 (a) 2.5 m (b) 2.8 m (c) 3 m (d) 2.36 m
- 20) Min. horizontal distance of any telegraph post measured from the centre of & at right angles to the nearest track for New works or alterations to existing works ( )  
 (a) The height of the post plus 2135 mm  
 (b) The height of the post plus 2360 mm  
 (c) The height of the post plus 3135mm  
 (d) The height of the post plus 2560 mm
- 21) Max. gradient in station yards for new works ( )  
 (a) 1 in 100 (b) 1 in 260 (c) 1 in 400 (d) 1 in 1200
- 22) Maintainer shall advise the station master on duty in writing on\_\_\_\_\_and obtain the signature before Group-B work is started. ( )  
 (a) written memo (b) Consent memo  
 (c) Disconnection memo (d) none
- 23) For replacing Signal LED unit\_\_\_\_\_Memo is required. ( )  
 (a) written memo (b) Consent memo  
 (c) Disconnection memo (d) none

- 24) For testing of point gauge \_\_\_\_\_ Memo is required for. ( )  
 (a) written memo (b) Consent memo  
 (c) Disconnection memo (d) none
- 25) Point adjustment comes under \_\_\_\_\_ works. ( )  
 (a) written memo (b) Consent memo  
 (c) Disconnection memo (d) none
- 26) \_\_\_\_\_ Memo is required for opening of block instrument for visual inspection ( )  
 (a) written memo (b) Disconnection memo  
 (c) Consent memo (d) none
- 27) EKT maintenance comes under \_\_\_\_\_ works ( )  
 (a) Group-A (b) Group-B  
 (c) Group-C (d) Disconnection memo
- 28) Adjustment of Regulating resistance comes under ( )  
 (a) Group-A (b) Group-B  
 (c) Group-C (d) Disconnection memo
- 29) Divisional disaster management plan is signed by ( )  
 (a) GM (b) AGM (c) CSO (d) DRM/ADRM
- 30) Divisional disaster management plan is reviewed and updated in \_\_\_\_\_ ( )  
 (a) January (b) June (c) July (d) December

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
a	b	a	d	c	b	d	a	b	c
11	12	13	14	15	16	17	18	19	20
d	b	c	b	c	c	d	b	c	b
21	22	23	24	25	26	27	28	29	30
d	b	c	b	c	c	c	c	d	a

## ST-15 : BASIC CONCEPTS OF SIGNALLING

- 1) Position light type CLS shunt signal at ON position displays\_\_\_\_\_ ( )  
(a) Two lights horizontally (b) Two lights inclined at 45 degrees to the left.  
(c) Two lights vertically (d) No lights
- 2) Minimum Visibility of main line starter in MACLS is ( )  
(a) 400 mtrs (b) 300 mtrs (c) 200 mtrs (d) None
- 3) Minimum distance required between Distant & Home signal in MACLS is\_\_\_\_( )  
a. 1400 mtrs b. 1000 mtrs c. 1200 mtrs d. None
- 4) Block Section Limit Board Provided on\_\_\_\_\_and demarcates\_\_\_\_\_ ( )  
a. Single line & Block section b. Double line & Station limits  
c. Single line & Station section d. Double line & Block section
- 5) 'P' marker is provided on\_\_\_\_\_ ( )  
a. All distant signals b. All distant signals in CLS area  
c. All permissive signals d. None
- 6) A gate cum distant signal will have\_\_\_\_\_number of aspects. ( )  
a. 2 b. 3 c. 4 d. none
- 7) Signal overlap in multiple aspect signaling is ( )  
a.180 mtrs b. 120 mtrs c. 400 mtrs d. 1000 mtrs
- 8) Block overlap in multiple aspect signaling is ( )  
a.180 mtrs b. 120 mtrs c. 400 mtrs d. 1000 mtrs
- 9) Gate stop signal in MACLS is provided at\_\_\_\_\_mtrs from the LC gate. ( )  
a. 180 mtrs b. 400 mtrs c. 120 mtrs d. None
- 10) Speed of trains in Std-I (R) interlocking is\_\_\_\_\_ ( )  
a. 50 kmph b. 110 kmph c. 140 kmph d. 160 kmph
- 11) Speed of trains in Std-II (R) interlocking is\_\_\_\_\_ ( )  
a. 50 kmph b. 110 kmph c. 140 kmph d. 160 kmph
- 12) Speed of trains in Std-III(R) interlocking is\_\_\_\_\_ ( )  
a. 50 kmph b. 110 kmph c. 140 kmph d. 160 kmph
- 13) Speed of trains in Std-IV (R) interlocking is\_\_\_\_\_ ( )  
a.50 kmph b. 120 kmph c. 140 kmph d. 160 kmph
- 14) Calling on signal is provided\_\_\_\_\_ ( )  
a. Below the distant signal b. below the home signal  
c. Below the last stop signal d. Below the shunt signal

- 15) The normal aspect of inner distant signal is ( )  
 a. Red                      b. Yellow                      c. Double yellow                      d. Green
- 16) The reception signal provided below main home signal ( )  
 a. Co-acting signal                      b. Repeating signal  
 c. Calling on signal                      d. None
- 17) D/signal in double distant territory displays proceed aspect then it indicates ( )  
 a. Run through on main line                      b. Run through on loop line  
 c. Trains going to be received on main line                      d. a & c
- 18) Catch siding shall be provided where the gradient steeper than 1:80 is falling towards \_\_\_\_\_ ( )  
 (a) Station section                      (b) station siding line  
 (c) block section                      (d) All
- 19) The Goods warning board shall be provided at 1 Km in rear of \_\_\_signal ( )  
 a) Station home                      b) Gate home                      c) IB signal                      d) none of above
- 20) Gate signal under absolute block system shall be provided with \_\_\_marker. ( )  
 a) 'G'                      b) 'AG'                      c) 'PG'                      d) Illuminated 'G'
- 21) When the shunt signal and calling on signal are provided below stop signal then Placement of signals from top \_\_\_\_\_ ( )  
 a) Calling on signal and then shunt signal                      b) shunt signal and then calling on signal  
 c) must not be provided                      d) a or b
- 22) A shunt signal can be provided below \_\_\_\_\_ ( )  
 a) FSS                      b) Starters                      c) Advance starter                      d) b & c
- 23) Calling-on signal can be provided below \_\_\_\_\_ ( )  
 a) FSS                      b) Starters                      c) Advance starter                      d) a & b
- 24) R marker is provided for \_\_\_\_\_signal ( )  
 a) Repeating                      b) Co-acting                      c) Routing home                      d) second distant
- 25) \_\_\_\_\_signal is provided if the visibility of signal is obstructed due to ROB ( )  
 a) Repeating                      b) Routing                      c) Co-acting                      d) none
- 26) \_\_\_\_\_marker is provided for the sidings taken off from block section ( )  
 a) P                      b) S                      c) R                      d) C
- 27) C marker is painted with \_\_\_\_\_ ( )  
 a) Letter C painted in white on black circular disc  
 b) Letter C painted in black on white circular disc

- c) Letter C painted in black on yellow circular disc  
d) Letter C painted in yellow on black circular disc
- 28) P marker is painted with\_\_\_\_\_ ( )  
a) Letter P painted in white on black circular disc  
b) Letter P painted in yellow on black circular disc  
c) Letter P painted in black on yellow circular disc  
d) Letter P painted in black on white circular disc
- 29) S marker board is painted with\_\_\_\_\_ ( )  
a) Letter S painted in white on black circular disc  
b) Letter S painted in yellow on black circular disc  
c) Letter S painted in black on yellow circular disc  
d) Letter S painted in black on white circular disc
- 30) G marker board is painted with\_\_\_\_\_ ( )  
a) Letter G painted in black on yellow circular disc  
b) Letter G painted in yellow on black circular disc  
c) Letter G painted in black on white circular disc  
d) Letter G painted in white on black circular disc
- 31) Second distant signal post is painted with\_\_\_\_\_ ( )  
a) alternate black and yellow bands      b) alternate yellow and white bands  
c) alternate black and white bands      d) Silver white
- 32) Inner distant signal post is painted with\_\_\_\_\_ ( )  
a) alternate black and yellow bands      b) alternate yellow and white bands  
c) alternate black and white bands      d) Silver white
- 33) Signal warning board indicates to the driver that he is approaching a \_\_\_\_\_ ( )  
a) Permissive signal      b) Stop signal  
c) Goods siding line      d) 2nd distant signal
- 34) Signal warning board need not be provided in \_\_\_\_\_ territory ( )  
a) Double distant signal      b) Single distant signal  
c) Auto signaling      d) none
- 35) Signal warning board is provided at a distance of 1.4 km from \_\_\_\_\_ ( )  
a) Double distant signal      b) Single distant signal  
c) Stop signal      d) Routing home
- 36) In single Distant signal territory, the distant signal will display attention aspect for a train \_\_\_\_\_ ( )  
a) admitted on loop line      b) admitted on main line  
c) run through via loop line      d) all

- 37) In single Distant signal territory, the distant signal will display proceed aspect for a train\_\_\_\_\_ ( )  
 a) admitted on loop line b) admitted on main line  
 c) run through via loop line d) run through via main line
- 38) The normal aspect of ASS is\_\_\_\_\_aspect ( )  
 a) caution b) proceed c) attention d) none
- 39) Semi automatic stop signal is provided with\_\_\_\_\_ ( )  
 a) Illuminated A marker b) Illuminated AG marker  
 c) Illuminated S marker d) none
- 40) ASS interlocked with points and LC gate is provided with illuminated --- marker( )  
 a) A b) AG c) A and AG d) none
- 41) Semi automatic stop signal will work as\_\_\_\_\_ ( )  
 a) automatic stop signal b) manual stop signal  
 c) a and b d) none
- 42) Semi automatic stop signal is operated by\_\_\_\_\_knob/lever ( )  
 a) queen b) king c) commander d) none
- 43) Authority to pass Automatic stop signal at ON position is\_\_\_\_\_ ( )  
 a) 2 min by day,1 min by night b) 1 min by day,1 min by night  
 c) 1 min by day,2 min by night d) 2 min by day,2 min by night
- 44) Automatic stop signal can be\_\_\_\_\_aspect ( )  
 a) 2 only b) 3 only c) 4 only d) 3 or 4
- 45) Aspect of ASS will depend upon\_\_\_\_\_ ( )  
 a) Aspect of signal ahead b) Condition of track ckt ahead  
 c) position of train ahead d) all
- 46) 3 aspect ASS will display\_\_ aspect when 1 signaling section and overlap is clear( )  
 a) ON b) Caution c) Proceed d) Attention
- 47) 3 aspect ASS will display \_\_ aspect when 2 signaling section and overlap is clear( )  
 a) Proceed b) Attention c) Caution d) ON
- 48) 4 aspect ASS will display \_\_ aspect when 1 signaling section and overlap is clear( )  
 a) Caution b) Attention c) Proceed d) ON
- 49) 4 aspect ASS will display\_\_ aspect when 2 signaling section and overlap is clear( )  
 a) Caution b) Attention c) Proceed d) ON
- 50) 4 aspect ASS will display \_\_ aspect when 3 signaling section and overlap is clear( )  
 a) Caution b) Attention c) Proceed d) ON

- 51) 3 aspect ASS will display caution aspect when\_\_\_\_\_ ( )  
 a) 1 signaling section & overlap is clear    b) 2 signaling sections & overlap is clear  
 c) 3 signaling sections & overlap is clear    d) none
- 52) 3 aspect ASS will display proceed aspect when\_\_\_\_\_ ( )  
 a) 1 signaling section & overlap is clear    b) 2 signaling sections & overlap is clear  
 c) 3 signaling sections & overlap is clear    d) none
- 53) 4 aspect ASS will display caution aspect when\_\_\_\_\_ ( )  
 a) 1 signaling section & overlap is clear    b) 2 signaling sections & overlap is clear  
 c) 3 signaling sections & overlap is clear    d) none
- 54) 4 aspect ASS will display Attention aspect when\_\_\_\_\_ ( )  
 a) 1 signaling section & overlap is clear    b) 2 signaling sections & overlap is clear  
 c) 3 signaling sections & overlap is clear    d) none
- 55) 4 aspect ASS will display proceed aspect when\_\_\_\_\_ ( )  
 a) 1 signaling section & overlap is clear    b) 2 signaling sections & overlap is clear  
 c) 3 signaling sections & overlap is clear    d) none
- 56) Automatic signaling system can be provided on\_\_\_\_\_ ( )  
 a) S/L                                  b) D/L                                  c) Quadruple line                  d) all
- 57) Direction of traffic must be established for working of trains on\_\_\_\_ system ( )  
 a) RE S/L automatic                                  b) RE D/L automatic  
 c) Non-RE S/L automatic                                  d) a and c
- 58) Direction of traffic need not be established for working of trains on \_\_ system ( )  
 a) RE S/L automatic                                  b) RE D/L automatic  
 c) Non-RE S/L automatic                                  d) a and c
- 59) Automatic signaling system ( )  
 a) Reduces the headway between trains                  b) Increases the section capacity  
 c) Safety depends upon the alertness of driver    d) all
- 60) Minimum Overlap distance beyond automatic stop signal is ( )  
 a) 120 mt                  b) 180 mt                  c) 400 mt                  d) none
- 61) Relation between number of aspects of signal and overlap is ( )  
 a) No relation    b) Directly proportional    c) Inversely proportional    d) none
- 62) Automatic stop signal provided with illuminated “A” and “AG” marker will display illuminated “A” marker when ( )  
 a) Points are detected                                  b) Closed position of LC is detected  
 c) a and b    d) none
- 63) Automatic stop signal provided with illuminated “A” and “AG” marker will display illuminated “AG” marker when ( )  
 a) Points are detected                                  b) LC gate is defective  
 c) a and b    d) none

- 64) Automatic stop signal provided with illuminated "A" & "AG" marker can display( )  
 a) either "A" or "AG" marker                      b) both markers at a time  
 c) question is vague                                      d) none
- 65) Automatic stop signal working either as fully automatic signal or manual signal is provided with\_\_\_\_\_marker ( )  
 a) Illuminated "A"              b) Illuminated "M"      c) Illuminated "A" & "M"      d) none
- 66) Braking distance will depend upon ( )  
 a) Speed of the train    b) Velocity of wind                      c) Brake power availability d) all
- 67) Braking distance will depend upon ( )  
 a) Gradient                      b) Rollability of wheels      c) State of rails (wet/dry)      d) all
- 68) Cross bars on signal unit indicates ( )  
 a) signal not in use                                      b) signal will work during day time only  
 c) signal will work during night time only      d) defective signal
- 69) Gate signals in automatic section is provided with ( )  
 a) "G" marker    b) "A" marker    c) "G" marker & illuminated "A" marker    d) a and b
- 70) On Indian railways there are\_\_\_\_\_systems of train working ( )  
 a) 4                                      b) 5                                      c) 6                                      d) 7
- 71) Absolute block working system consists of \_classes of station ( )  
 a) 2                                      b) 3                                      c) 4                                      d) 6
- 72) Portion of track situated between outermost signals of the station is called as ( )  
 a) block limits    b) station limits    c) shunting limits    d) Clear standing room limit
- 73) Point and trap indicators are ( )  
 a) Signals              b) Not signals              c) fitted to and work with points    d) none
- 74) Entry of trains into block section is controlled by ( )  
 a) Home signal                                      b) Advance starter  
 c) Shunt signal                                      d) Calling-On signal
- 75) Intermediate block signal is substitute of class\_\_\_\_\_station ( )  
 a) A                                      b) B                                      c) C                                      d) D
- 76) Terminal stations is also called as\_\_\_\_\_station ( )  
 a) Class A                                      b) Class B                                      c) Class C                                      d) Special class
- 77) Approved special instructions are prescribed and approved by ( )  
 a) CSTE                                      b) COM                                      c) CRS                                      d) AGM



- 78) Adequate distance is the distance required for \_\_\_\_\_ ( )  
 a) Ensuring safety b) Stabling of vehicles  
 c) Shunting of vehicles d) none
- 79) Permission given by block station in advance to block station in rear for train to leave is called as \_\_\_\_\_ ( )  
 a) Line block b) Line clear c) Block back d) Block forward
- 80) As per SEM part -1, correction slip no 18 calling initiation time is \_\_\_\_\_ sec ( )  
 a) 60 b) 90 c) 120 d) 240
- 81) As per SEM part -1, correction slip no 18 calling on signal below starter can be initiated \_\_\_\_\_ ( )  
 a) Immediately after berthing track is occupied  
 b) 60 sec after berthing track is occupied  
 c) 120 sec after berthing track is occupied  
 d) Immediately without berthing track is occupied
- 82) Calling on signal will not detect points in the \_\_\_\_\_ ( )  
 a) Route b) Isolation c) overlap d) none
- 83) Movement of trains into auto signaling section is controlled by \_\_\_\_\_ signal ( )  
 a) Calling on b) Shunt c) permissive d) Stop
- 84) Automatic signaling arrangement facilitates to \_\_\_\_\_ line capacity ( )  
 a) Hamper b) Increase c) Reduce d) none
- 85) Once the signal has been taken OFF, it must not be possible to alter the points unless the \_\_\_\_\_ has been put back to ON position. ( )  
 a) Point b) Signal c) Lock bar d) none
- 86) It shall not be possible to take OFF at the same time, any two fixed signals which can lead to \_\_\_\_\_ movements ( )  
 a) Conflicting b) Parallel c) Flexible d) To and fro
- 87) \_\_\_\_\_ signal is a Pre-warning signal ( )  
 a) Shunt b) Calling-on c) Distant d) none
- 88) Second distant signal is provided at a distance of \_\_\_\_\_ km from stop signal. ( )  
 a) 1 b) 1.2 c) 1.4 d) 2
- 89) Advantages of Color light signal is \_\_\_\_\_ ( )  
 a) Day and night aspects are same b) Signals are placed at driver's eye level  
 c) Long range of operation d) all
- 90) Proceed and be prepared to stop at next stop signal is indicated by \_\_\_\_\_ aspect of signal ( )  
 a) ON b) Caution c) Attention d) proceed

- 91) Proceed and be prepared to pass next stop signal at restricted speed is indicated by \_\_\_\_\_ aspect of signal ( )  
 a) ON                              b) Caution                      c) Attention                      d) proceed
- 92) The Distant signal shall display only \_\_\_\_\_ aspect where “Distant” and “Inner Distant” signals are provided ( )  
 a) Attention or Proceed              b) Caution only              c) Proceed only              d) none
- 93) Intermediate starter signal is provided between ( )  
 a) starter and home                              b) starter and routing home  
 c) starter and advanced starter              d) loop line starter and main line starter
- 94) \_\_\_\_\_ is provided at stations where Uninterrupted shunting operations is required in both directions ( to and fro ) ( )  
 a) Position light type shunt signal              b) Calling on  
 c) Routing starter                              d) Shunting permitted indicator
- 95) BSLB is provided to distinguish the limit of ( )  
 a) station limits              b) block section              c) station section              d) none
- 96) Block overlap in class C station provided color light signal is ( )  
 a) 400 mt                              b) 180 mt                              c) 120 mt                              d) none
- 97) Classification of LC gate is made after conducting level crossing census once in ( )  
 a) 2 years                              b) 3 years                              c) 4 years                              d) 5 years
- 98) LC gate census will be done by supervisors of ( )  
 a) Engg and S & T                              b) Traffic and S & T  
 c) S & T, Engg and Traffic                              d) S & T and operating
- 99) Train vehicle units per day is calculated based on ( )  
 a) no. of passengers x no. of road vehicle              b) no. of trains x no. of pedestrians  
 c) no. of trains x no. of passengers              d) no. of trains x no. of road vehicle
- 100) Interlocking of LC gate is not required for ( )  
 a) Special class              b) A class              c) B class              d) D class
- 101) Interlocking of LC gate is required for ( )  
 a) Special class              b) A class              c) B class              d) all
- 102) Approach Warning to be provided at \_\_\_\_\_ ( )  
 a) Special class              b) A class              c) B class              d) all
- 103) LC gate in automatic signaling section shall be ( )  
 a) Interlocked irrespective of classification              b) Provided with approach warning  
 c) Approach locking                              d) all
- 104) Signal protecting LC gate in Automatic signalling section shall be provided with ( )



## ST-18 : ICC, EKT & EPD

- 1) EKT is provided with\_\_\_\_\_number of armatures ( )  
a. one                      b. two                      c. three                      d. four
- 2) Minimum working voltage of RKT is \_\_\_\_\_ ( )  
a. 3.75 DC volt              b. 18 volt DC              c. 24 volt DC              d. 12 volt DC
- 3) Resistance of the RKT coil is \_\_\_\_\_ ( )  
a) 12.5 Ohms              b) 600 Ohms              c) 150 Ohms              d) 220 Ohms
- 4) \_\_\_\_\_relay ensures one slot one train movement ( )  
a. YR                      b. TSR                      c. YSR                      d. SR
- 5) When the point/ ED is set in normal, the slide with small depression corresponds to ( )  
a . open switch              b. close switch              c. in between switch              d. None
- 6) When point is in centre, in ED \_\_\_\_\_contacts makes ( )  
a. ND & NSH              b. RD & RSH              c. NSH & RSH              d. ND & RD
- 7) In ED \_\_\_\_\_contacts makes when point is set & locked in Normal position ( )  
a. ND & RD              b. ND & RSH              c. ND & NSH              d. None
- 8) ED should foul for locking & detection with \_\_\_\_\_obstruction in point ( )  
a. 5 mm                      b. 3.25 mm                      c. 1.6 mm                      d. 1.0 mm
- 9) Detector contacts are numbered from ( )  
a. Left to right              b) Right to left              c) Centre to left              d) Centre to right
- 10) Each contact block consists of ( )  
a) Fixed contacts              b) detector contacts              c) Shunt contact              d) all
- 11) When point is unlocked ( )  
a) Both shunt contacts will make                      b) detector contacts will break  
c) a & b                      d) none
- 12) Unrelated part with IRS type detector is ( )  
a) Milled steel base              b) cast iron base              c) contact block              d) cast iron frame
- 13) Unrelated part with IRS type detector is ( )  
a) Snubbing contacts              b) detector slides              c) shunt contacts              d) cast iron frame
- 14) Contact operating mechanism consists of ( )  
a) 2 sets of helical spring              b) 2 sets of trolley rollers              c) a and b              d) none
- 15) Contact operating mechanism consists of ( )  
a) 3 sets of bridge contacts                      b) yoke                      c) crank                      d) all

- 16) Two locking washers are provided to lock the base in final position ( )  
 a) before adjustment    b) after adjustment    c) during adjustment    d) none
- 17) Each detector slide has \_\_\_\_\_ ( )  
 a) Single notch    b) 2 notches    c) 3 notches    d) 4 notches
- 18) The depth of the notch is ( )  
 a) 3 mm    b) 5 mm    c) 7 mm    d) 9 mm
- 19) Each detector slide consists of ( )  
 a) 2 short notches    b) 2 long notches    c) 1 short and 1 long notch    d) none
- 20) Switch detection slides are of ( )  
 a) A type    b) B type    c) C and D type    d) none
- 21) Lock slides are of ( )  
 a) A type    b) B type    c) C and D type    d) a and b
- 22) "A" type lock slide is used for \_\_\_\_\_ locking ( )  
 a) Straight through    b) IN and Out    c) Rotary    d) none
- 23) "B" type lock slide is used for \_\_\_\_\_ locking ( )  
 a) Straight through    b) IN and Out    c) Rotary    d) none
- 24) Incorrect statement with an obstruction of 3.25 mm from 150 mm of toe ( )  
 a) Points will not be locked by the lock plunger  
 b) The bridge contacts do not make  
 c) shunt contacts will remain closed  
 d) none
- 25) Incorrect part related with EKT is ( )  
 a) Quick return gear    b) electromagnet auxiliary pole  
 c) Electromagnet main pole    d) none
- 26) Incorrect part related with EKT is ( )  
 a) Electromagnet    b) operating piece    c) stud    d) none
- 27) \_\_\_\_\_ numbers of brass tumblers control the movement of key ( )  
 a) 2    b) 3    c) 4    d) none
- 28) EKT transmission is provided with separate AC immunized relays in \_\_\_ area ( )  
 a) RE area    b) Non- RE area    c) a and b    d) none
- 29) Correct statement related with key transmitters is ( )  
 a) key can be extracted by jerk  
 b) key can be extracted by external force  
 c) key can be extracted when conditions are favorable  
 d) key can be extracted without conditions are favorable

- 30) EKT cover can be opened ( )  
 a) when the key is IN and locked condition      b) when the key is out  
 c) a and b      d) none
- 31) Incorrect statement related with key transmitters ( )  
 a) need not be tested periodically      b) testing done only during inspection  
 c) must be tested periodically      d) none
- 32) Sealing of EKT is ( )  
 a) compulsory      b) not compulsory      c) optional      d) none
- 33) General maintenance of EKT as per SEM ( )  
 a) 7 days      b) 15 days      c) 21 days      d) 30 days
- 34) Slotted signal is controlled by ( )  
 a) one agency only      b) more than two agencies  
 c) more than three agencies      d) b and c
- 35) Calling on signal is controlled by ( )  
 a) No slot      b) Only calling on slot  
 c) Only Home signal slot      d) Both calling on Slot & Home signal slot
- 36) Slotted signal can be taken off by ( )  
 a) one agency only  
 b) agencies which have control on the signal  
 c) agencies which do not have control on the signal  
 d) none
- 37) Slotting agencies must release their control only when \_\_\_\_\_ ( )  
 a) all conditions are favorable to take off signal  
 b) partial conditions are favorable to take off signal  
 c) conditions are not favorable to take off signal  
 d) none
- 38) Receipt of the slot is ( )  
 a) Compulsory for slotted signal      b) not compulsory for slotted signal  
 c) optional      d) none
- 39) In case of emergency signal can be put back by \_\_\_\_\_ agency ( )  
 a) operating      b) slotting      c) a and b      d) none
- 40) Dependant signal must be replaced to ON position when ( )  
 a) slotted signal is replaced to ON position      b) slots are withdrawn  
 c) track circuit occupancy is proved in slot      d) all
- 41) Slotted signal shall automatically replace to ON position when ( )  
 a) condition of track circuit is proved in the slot  
 b) condition of point circuit is proved in the slot  
 c) condition of level crossing is proved in the slot  
 d) none

- 42) Equipments used in slotting system is ( )  
 a) SM's slide control      b) Slot indicators      c) circuit controller      d) all
- 43) Each SM's slide will have ( )  
 a) 1 set of normal and reverse contact  
 b) 1 sets of normal and 1 set of reverse contact  
 c) 2 sets of normal and 2 set of reverse contact  
 d) 2 sets of normal and 1 set of reverse contact
- 44) Slot indicators are of \_\_\_\_\_ ( )  
 a) single type      b) two types      c) three types      d) none
- 45) Different type of slot indicators are ( )  
 a) banner type      b) disc type      c) luminous type      d) all
- 46) YSR means ( )  
 a) slot stick relay      b) slot slow relay  
 c) slot shunt relay      d) slot sectional relay
- 47) All slots normal relay is ( )  
 a) YSR      b) YNR      c) YR      d) YSNR
- 48) Slot I relay is ( )  
 a) YSR      b) YNR      c) YR      d) YSNR
- 49) Track circuit condition is proved in ( )  
 a) YR      b) YNR      c) YSR      d) all
- 50) Position of point is proved in ( )  
 a) YR      b) YNR      c) YSR      d) all
- 51) Condition of relays when slotted signal is not operated ( )  
 a) YNR ↑ YSR ↑ YR ↑      b) YNR ↑ YSR ↓ YR ↑  
 c) YNR ↓ YSR ↓ YR ↓      d) YNR ↑ YSR ↑ YR ↓
- 52) Condition of relays when slotted signal is operated ( )  
 a) YNR ↑ YSR ↑ YR ↑      b) YNR ↓ YSR ↑ YR ↑  
 c) YNR ↓ YSR ↓ YR ↓      d) YNR ↑ YSR ↑ YR ↓
- 53) Position of relays after train passed slotted signal in OFF condition ( )  
 a) YNR ↑ YSR ↑ YR ↑      b) YNR ↓ YSR ↑ YR ↑  
 c) YNR ↓ YSR ↓ YR ↓      d) YNR ↑ YSR ↑ YR ↓
- 54) Position of relays when train passed slotted signal at ON position ( )  
 a) YNR ↑ YSR ↓ YR ↓      b) YNR ↓ YSR ↑ YR ↑  
 c) YNR ↓ YSR ↓ YR ↓      d) YNR ↑ YSR ↑ YR ↑

- 55) Track occupancy is proved in ( )  
 a) YR            b) YNR            c) YSR            d) none
- 56) All slots normal relay is ( )  
 a) YR            b) YNR            c) YSR            d) none
- 57) Relays which picks up when all slots are normalised after the train movement ( )  
 a) YNR, YR      b) YNR, YSR      c) YR, YSR      d) none
- 58) Relay which drops when slot is released ( )  
 a) YNR            b) YSR            c) YR            d) None
- 59) Track occupancy is not proved in ( )  
 a) YNR            b) YSR            c) YR            d) a and c
- 60) Relays which are normally in energized condition ( )  
 a) YSR, YR      b) YNR, YR      c) YNR, YSR      d) None

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
b	a	a	c	b	c	c	b	a	d
11	12	13	14	15	16	17	18	19	20
c	a	a	c	d	b	b	c	c	c
21	22	23	24	25	26	27	28	29	30
d	b	a	d	d	d	b	a	c	b
31	32	33	34	35	36	37	38	39	40
c	a	b	d	d	b	a	a	c	d
41	42	43	44	45	46	47	48	49	50
a	d	c	c	d	a	b	c	c	a
51	52	53	54	55	56	57	58	59	60
d	b	c	a	c	b	b	a	d	c



ST-19 : SIGNALLING RELAYS AND CABLES

- 1) Normal rated working voltage of QN1 is \_\_\_\_ ( )  
a. 12v DC                      b. 24v DC                      c. 60v DC                      d. 110v DC
- 2) Normal rated working voltage of QL1 is \_\_\_\_ ( )  
a. 12v DC                      b. 24v DC                      c. 60v DC                      d. 110v DC
- 3) Normal rated working voltage of QB3 is \_\_\_\_ ( )  
a. 12v DC                      b. 24v DC                      c. 60v DC                      d. 110v DC
- 4) Normal rated pick up voltage of QTA2 is \_\_\_\_ ( )  
a. 1.4v DC                      b. 1.75v DC                      c. 2.8v DC                      d. 4.2v DC
- 5) Normal rated pick up voltage of QBAT is \_\_\_\_ ( )  
a. 1.4v DC                      b. 1.75v DC                      c. 2.8v DC                      d. 4.2v DC
- 6) QT2 relay is a \_\_\_\_\_ ( )  
a. Heavy duty                      b. Track relay                      c. Neutral relay                      d. K-50 relay
- 7) QBCA1 relay is a \_\_\_\_\_ ( )  
a. Heavy duty                      b. Track relay                      c. Neutral relay                      d. K-50 relay
- 8) Which of the following relay has two coils for picking up and dropping ( )  
a. QBA1                      b. QSPA1                      c. QL1                      d. QS3
- 9) Which of the following relay is used in push button type block instrument ( )  
a. QBA1                      b. QSPA1                      c. QL1                      d. QS3
- 10) Which of the following relay is used in DAIDO block instrument ( )  
a. QBA1                      b. QSPA1                      c. QL1                      d. QS3
- 11) \_\_\_\_\_ type relay is used in push button block instrument line circuit ( )  
a. QBA1                      b. QB3                      c. QL1                      d. QN1
- 12) \_\_\_\_\_ type relay is used in DAIDO block instrument line circuit ( )  
a. QBA1                      b. QB3                      c. QL1                      d. QN1
- 13) \_\_\_\_\_ type relay is not provided with residual pin ( )  
a. QBA1                      b. QB3                      c. QL1                      d. QN1
- 14) For AC immunization feature in the relay \_\_\_\_\_ is provided ( )  
a. copper slug    b. permanent magnet  
c. magnetic shunt    d. blow out magnets
- 15) For biasing feature in the relay \_\_\_\_\_ is provided ( )  
a. copper slug    b. permanent magnet  
c. magnetic shunt    d. blow out magnets



- 31) Polarized relay is provided with\_\_\_\_\_type of contacts ( )  
 a. dependent                      b. independent                      c. both                      d. none
- 32) Polarized relay coil resistance is \_\_\_\_\_ohms ( )  
 a. 9                      b. 77                      c. 200                      d. 400
- 33) Polarized relay is provided with\_\_\_\_\_contacts ( )  
 a. 2F/2B                      b. 2NC/2RC                      c. 1F/1B                      d. 1NC/1RC
- 34) Working voltage of Q-series twin neutral line relay (QNN1) is\_\_\_\_\_ ( )  
 a. 24v DC                      b. 10v DC                      c. 60v DC                      d. 110v DC
- 35) \_\_\_\_\_relay is not having POH date ( )  
 a. QN1                      b. QT2                      c. QTA2                      d. QBAT
- 36) Q-series relays are provided with\_\_\_\_\_type of contacts ( )  
 a. metal to metal                      b. metal to carbon  
 c. carbon to carbon                      d. carbon to metal
- 37) QN1 relay coil resistance is\_\_\_\_\_ ( )  
 a. 200 ohms                      b. 400 ohms                      c. 9 ohms                      d. none
- 38) QNA1 relay coil resistance is\_\_\_\_\_ ( )  
 a. 200 ohms                      b. 400 ohms                      c. 9 ohms                      d. none
- 39) The periodical replacement of track relay is once in \_\_\_\_\_ ( )  
 a. 12 years                      b. 15 years                      c. 7 years                      d. 10 years
- 40) Maximum voltage for QTA2 should be up to \_\_\_\_\_under maximum B.R. ( )  
 a. 125% of it's normal rated P.U. value  
 b. 235% of it's normal rated P.U. value  
 c. 250% of it's normal rated P.U. value  
 d. 300% of it's normal rated P.U. value
- 41) Minimum voltage for QTA2 should be up to\_\_\_\_\_under minimum B.R. ( )  
 a. 125% of it's normal rated P.U. value  
 b. 235% of it's normal rated P.U. value  
 c. 250% of it's normal rated P.U. value  
 d. 300% of it's normal rated P.U. value
- 42) Maximum voltage for QBAT should be up to\_\_\_\_\_under maximum B.R. ( )  
 a. 125% of it's normal rated P.U. value  
 b. 235% of it's normal rated P.U. value  
 c. 250% of it's normal rated P.U. value  
 d. 300% of it's normal rated P.U. value

- 43) Minimum voltage for QBAT should be upto\_\_\_\_\_under minimum B.R. ( )  
 a. 122% of it's normal rated P.U. value  
 b. 235% of it's normal rated P.U. value  
 c. 250% of it's normal rated P.U. value  
 d. 300% of it's normal rated P.U. value
- 44) In non-RE area\_\_\_\_\_track relay is used ( )  
 a. QBAT                      b. QTA2                      c. QT2                      d. QT1
- 45) Normal rated working voltage of k-50 series (Siemens) relay is\_\_\_\_ ( )  
 a. 12v DC                      b. 24v DC                      c. 60v DC                      d. 110v DC
- 46) Contact resistance of K-50 relay is\_\_\_\_ ( )  
 a. 0.20 ohms                      b. 0.18 ohms                      c. 0.05 ohms                      d. 1.8 ohms
- 47) The maximum number of contacts in K-50 relay is ( )  
 a. 6                      b. 8                      c. 12                      d. 16
- 48) The maximum contacts combination available in K-50 relay is\_\_\_\_ ( )  
 a. 5F/3B                      b. 4F/4B                      c. 6F/2B                      d. All
- 49) K-50 series relays are provided with\_\_\_\_\_type of contacts ( )  
 a. metal to metal                      b. metal to carbon  
 c. carbon to carbon                      d. carbon to metal
- 50) The periodical replacement of Polarized relay is once in\_\_\_\_\_ ( )  
 a. 10 years                      b. 15 years                      c. 7 years                      d. 12 years
- 51) Tail Cables are meggered once in a\_\_\_\_\_ ( )  
 a. 6 months                      b. 12 months                      c. 10 months                      d. 36 months
- 52) U/G main cables conductor insulation test will be carried out once in\_\_\_\_ ( )  
 a. 6 months                      b. 12 months                      c. 24 months                      d. 36 months
- 53) Size of the conductor in 20-core signaling cable is\_\_\_\_\_sq. mm ( )  
 a. 1.2                      b. 1.5                      c. 2.25                      d. 2.5
- 54) Cross section of 2 core aluminum Power cable is \_\_\_\_sq. mm ( )  
 a. 2.5                      b. 25                      c. 35                      d. 1.5
- 55) Loop resistance of quad cable with 0.9 .mm dia\_\_\_\_\_Ω/Km ( )  
 a. 56                      b. 28                      c. 46                      d. Infinite
- 56) Loop resistance of signaling cable (1.5sq.mm.) is\_\_\_\_\_Ω/km ( )  
 a. 56                      b. 23                      c. 10                      d. 16

- 57) Conductor size of 2 core signaling Cable used in track circuits is \_ ( )  
 a) 25 sq. mm.                      b) 2.5 sq mm.                      c) 1.5 sq.mm.                      d) 50 sq. mm.
- 58) For laying cable, the size of the cable trench shall be \_\_\_\_\_ ( )  
 a) 1m. width & 30cm. Depth                      b) 1m. Depth & 30cm. Width  
 c) 1.5.m. depth & 30cm. Width                      d) 60cm. Depth & 30cm.Width
- 59) Insulation resistance of cable must be \_\_\_\_\_MΩ / per KM ( )  
 a. Greater or equal to 5                      b. below 5  
 c. Greater than 1                      d. None of the above
- 60) 6 Quad cable is used for \_\_\_\_\_. ( )  
 a) Point Operation                      b) Signal Operation  
 c) Axle Counter                      d) Lever Lock
- 61) While crossing the track, Cable should be laid \_\_\_\_\_ ( )  
 a) in GI/ RCC Pipe                      b) perpendicular to track  
 c) At a depth of 1 Mtr                      d) All the above
- 62) Spare conductors to a minimum of \_\_\_\_\_% of the total conductors used shall be provided for in each main cable up to the farthest point zone. ( )  
 a) 0 %                      b) 10 %                      c) 20 %                      d) 50%
- 63) The spare conductors shall be provided on the \_\_\_\_\_layer. ( )  
 a) Inner most                      b) Middle                      c) Outermost                      d) All the above
- 64) As per SEM part II Para 15.12 the cable laid parallel to the track shall normally be buried at a depth of \_\_\_\_\_meters from ground level. ( )  
 a) 1.0 mt                      b) 1.5 mt                      c) 0.8 mt                      d) 1.2 mtrs
- 65) \_\_\_\_\_Cables shall be used in all signalling circuits. ( )  
 a) Screened cables only                      b) Un Screened cables only  
 c) Screened and Un screened cables                      d) None of the above
- 66) Testing the signaling cables is done with ( )  
 a) Multimeter                      b) Earth leakage detector  
 c) 500 V DC megger                      d) both b and c above
- 67) Each layer in an Outdoor Cable ( )  
 a) starts from blue conductor and ends with yellow conductor  
 b) starts from blue conductor and ends with grey conductor  
 c) starts from grey conductor and ends with yellow conductor  
 d) None

- 68) The cable shall be laid so that it is not less than one meter from the nearest edge of the mast supporting the catenary or any other live conductor provided the depth of the cable does not exceed ( )  
 a) 0.5 meters.                      b) 1 meter                      c) 3 mtrs                      d) None
- 69) When the cable is laid at a depth greater than 0.5 meters, a minimum distance between the cable and the nearest edge of the OHE structure must be ( )  
 a) 3 mtrs                      b) 0.3 mtrs                      c) 1 mtrs                      d)None
- 70) Insulation value of the cable at the time of commissioning should not be below \_\_\_\_\_ MΩ/KM at 20°C ( )  
 a) 200.                      b) 10                      c) 5                      d) None
- 71) Suitable cable markers should be provided every \_\_\_\_\_ along the cable route for easy identification ( )  
 a) 10 mtrs                      b) 15 mtrs                      c) 20 mtrs                      d) None
- 72) Outside station limits with OHE mast, the cable should generally be laid at not less than \_\_\_\_\_ from the centre of the nearest track. ( )  
 a) 5.5 mtrs                      b) 55 mtrs                      c) 3 mtrs                      d) None
- 73) Within station limits without OHE mast, the cable should generally be laid at not less than \_\_\_\_\_ from the centre of the nearest track ( )  
 a) 5.5 mtrs                      b) 55 mtrs                      c) 3 mtrs                      d) None
- 74) Common faults which develop on conductors of multi-core signalling cables are ( )  
 a) Earth                      b) Short-Circuit                      c) Open -Circuit                      d) all the above
- 75) Earth fault develops in a conductor due to ( )  
 a) defective insulation of conductor                      b) Short-Circuit between conductors  
 c) breaking of a conductor                      d) None
- 76) \_\_\_\_\_ Megger is used for testing signalling cables ( )  
 a) 500 V AC                      b) 110 V DC                      c) 500 V DC                      d) any of the above
- 77) \_\_\_\_\_ Megger is used for testing telecom cables ( )  
 a) 500 V AC                      b) 100 V DC                      c) 500 V DC                      d) any of the above
- 78) Wire used for Q series relay wiring is ( )  
 a) 1.5 sq mm copper conductor  
 b) 16/0.20 mm dia. Flexible Copper wire (Multi strand)  
 c) 0.6 mm dia. Copper wire.  
 d) any of the above

79) If signaling cables are laid in the vicinity of the switching station earthing, the distance of the cable trench shall be \_\_\_\_\_ ( )

- a) atleast 5 mtrs away    b) atleast 2 mtrs away  
 c) very near to switching station earth                  d) any of the above

80) Outside station limits, the cable should generally be laid at not less than \_\_\_\_\_ from the centre of the nearest track. ( )

- a) 8-10 mtrs    b) 55 mtrs    c) 3 mtrs    d) None

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
b	b	a	a	b	b	a	c	c	a
11	12	13	14	15	16	17	18	19	20
b	a	c	a	b	d	c	d	b	c
21	22	23	24	25	26	27	28	29	30
b	d	a	c	c	b	a	c	b	b
31	32	33	34	35	36	37	38	39	40
a	b	d	a	a	b	b	a	d	d
41	42	43	44	45	46	47	48	49	50
a	b	a	c	c	c	b	d	a	a
51	52	53	54	55	56	57	58	59	60
b	c	b	b	a	b	b	b	a	c
61	62	63	64	65	66	67	68	69	70
d	d	c	c	b	d	a	a	a	a
71	72	73	74	75	76	77	78	79	80
b	a	c	d	a	c	b	b	a	a

## ST-20 : D.C. TRACK CIRCUIT

- 1) Q-series DC track relays must be replaced once in \_\_\_\_\_ ( )  
a. 5 years                      b. 7 years                      c. 9 years                      d. 10 years
- 2) Size of track tail / lead cable with copper conductor is \_\_\_\_\_ ( )  
a. 1.5 sq.mm                      b. 2.5 sq.mm                      c. 25 sq.mm                      d. 15 sq.mm
- 3) In a TC, the Lead cable is laid in between \_\_\_\_\_ ( )  
a. Location box to Location box                      b. Location box to TLJB  
c. TLJB to Track                      d. none
- 4) In a TC, the Tail cable is laid in between \_\_\_\_\_ ( )  
a. Location box to Location box                      b. Location box to TLJB  
c. TLJB to Track                      d. none
- 5) The variable resistance value in non-RE area DC track circuit is \_\_\_\_\_ ( )  
a. 0-15 ohms                      b. 0-30 ohms                      c. 0-25 ohms                      d. None
- 6) The main purpose of Variable Resistance in a TC is \_\_\_\_\_ ( )  
a. To protect feed end equipment                      b. to adjust voltage on T.R.  
c. to protect Relay                      d. a & b
- 7) The minimum Track Circuit Length should be of \_\_\_\_\_ lengths ( )  
a. 1 Rail                      b. 2 Rail                      c. 4 Rail                      d. 5 Rail
- 8) Maximum permitted Rail resistance for track circuit lengths up to 700m. is \_\_\_\_\_ ( )  
a. 0.5 ohms/Km                      b. 1.5 ohms/Km                      c. 2 ohms/Km                      d. None
- 9) Maximum permitted Rail resistance for track circuit lengths above 700m. is \_\_\_\_\_ ( )  
a. 0.5 ohms/Km                      b. 1.5 ohms/Km                      c. 2 ohms/Km                      d. None
- 10) Minimum permissible ballast resistance for T.C. in station yard ( )  
a. 2  $\Omega$  /km                      b. 4  $\Omega$  /km                      c. 10  $\Omega$  /km                      d. none
- 11) Under maximum ballast resistance, the voltage on T.R. is adjusted up to \_\_\_\_\_ ( )  
a. 125% of it's normal rated P.U. value  
b. 300% of it's normal rated P.U. value  
c. 125% of it's normal rated D.A. value  
d. 300% of it's normal rated D.A. value
- 12) Under minimum ballast resistance, the voltage on TR should be not less than \_\_\_\_\_ ( )  
a. 125% of it's normal rated P.U. value  
b. 300% of it's normal rated P.U. value  
c. 125% of it's normal rated D.A. value  
d. 300% of it's normal rated D.A. value
- 13) If feed end & relay end voltages are equal, then the \_\_\_\_\_ ( )  
a. Ballast resistance is zero                      b. Rail resistance is zero  
c. Ballast resistance is infinity                      d. Rail resistance is infinity



- 14) If feed end & relay end currents are equal, then the\_\_\_\_\_ ( )  
 a. Ballast resistance is zero                      b. Rail resistance is zero  
 c. Ballast resistance is infinity                      d. Rail resistance is infinity
- 15) As the BR value increases, the voltage on TR\_\_\_\_\_in a TC ( )  
 a. increases                      b. decreases                      c. no change                      d. none
- 16) As the BR value decreases, the voltage on TR\_\_\_\_\_in a TC ( )  
 a. increases                      b. decreases                      c. no change                      d. none
- 17) As the RR value increases, the voltage on TR\_\_\_\_\_in a TC ( )  
 a. increases                      b. decreases                      c. no change                      d. none
- 18) As the RR value decreases, the voltage on TR\_\_\_\_\_in a TC ( )  
 a. increases                      b. decreases                      c. no change                      d. none
- 19) If TC length decreased, the BR value\_\_\_\_\_in a TC ( )  
 a. increases                      b. decreases                      c. no change                      d. none
- 20) If TC length increased, the BR value\_\_\_\_\_in a TC ( )  
 a. increases                      b. decreases                      c. no change                      d. none
- 21) If TC length increased, the RR value\_\_\_\_\_in a TC ( )  
 a. increases                      b. decreases                      c. no change                      d. none
- 22) If TC length decreased, the RR value\_\_\_\_\_in a TC ( )  
 a. increases                      b. decreases                      c. no change                      d. none
- 23) In a TC,\_\_\_\_\_to be done for keeping maximum Ballast Resistance condition ( )  
 a. no water stagnation                      b. ballast clearance                      c. both                      d. none
- 24) In a TC,\_\_\_\_\_to be done for keeping minimum Rail Resistance condition ( )  
 a. double bonding                      b. neat & tight                      c. both                      d. none
- 25) The minimum ballast clearance should be\_\_\_\_\_in a track circuit ( )  
 a. 15 mm                      b. 25 mm                      c. 50 mm                      d. 75 mm
- 26) When minimum TSR value is connected across the T.C., the T.R. must drop and voltage on T.R. should be\_\_\_\_\_of it's rated drop away value ( )  
 a. more than 85%                      b. less than 85%                      c. less than 125%                      d. less than 300%
- 27) Maximum Broken rail protection is available in\_\_\_\_\_ ( )  
 a. Series track circuit                      b. Parallel track circuit  
 c. Multiple track circuit                      d. None
- 28) PSC sleeper is tested with\_\_\_\_\_before laying in track circuit ( )  
 a. 100 V DC megger                      b. sensible multi meter  
 c. 500 V DC megger                      d. clip-on meter
- 29) To detect defective PSC sleeper is tested with\_\_\_\_\_in a track circuit ( )  
 a. 100 V DC megger                      b. sensible multi meter  
 c. 500 V DC megger                      d. clip-on meter

- 30) The resistance values between insert to insert of a PSC sleeper before laying in Track circuit should be not less than \_\_\_\_\_, after 6 months of manufacturing ( )  
 a. 150  $\Omega$                       b. 300  $\Omega$                       c. 500  $\Omega$                       d. 750  $\Omega$
- 31) Testing of Glued Joints Insulation Resistance is done with \_\_\_\_\_ ( )  
 a. 100 V DC megger                      b. sensible multimeter  
 c. 500 V DC megger                      d. clip-on meter
- 32) The insulation resistance value should be \_\_\_\_\_ when tested Glued Insulation Joint in dry condition, before laying in a TC ( )  
 a. not less than 25 M $\Omega$                       b. less than 25 M $\Omega$   
 c. less than 3 K $\Omega$                       d. not less than 3 K $\Omega$
- 33) The insulation resistance value should be \_\_\_\_\_ when tested Glued Insulation Joint in wet condition, before laying in a TC ( )  
 a. not less than 25 M $\Omega$                       b. less than 25 M $\Omega$   
 c. less than 3 K $\Omega$                       d. not less than 3 K $\Omega$
- 34) In any case the dead section should be less than \_\_\_\_\_ in B.G. ( )  
 a. 6 meters                      b. 8 meters                      c. 1.8 meters                      d. 10.8 meters
- 35) Normally the dead section in the point zone shall be less than \_\_\_\_\_ in BG ( )  
 a. 6 meters                      b. 8 meters                      c. 1.8 meters                      d. 10.8 meters
- 36) In a point zone, If dead section is more than 1.8m but less than 6m then, the track circuit length on either side of dead section must not be less than \_\_\_\_\_ ( )  
 a. 6 meters                      b. 8 meters                      c. 10 meters                      d. 12 meters
- 37) The bond hole / drill bit size is \_\_\_\_\_ mm dia. ( )  
 a. 6.8                      b. 7.2                      c. 7.8                      d. 8.2
- 38) \_\_\_\_\_ type pandrol clips to be provided for PSC sleepers at Glued Insulation Joints ( )  
 a. I                      b. J                      c. K                      d. S
- 39) Never bypassed \_\_\_\_\_ in the track circuit ( )  
 a. TFBC                      b. Battery                      c. VR (RT)                      d. none
- 40) For each PSC sleeper, \_\_\_\_\_ number of rubber pads & GFN liners are required ( )  
 a. 1 & 1                      b. 2 & 2                      c. 2 & 4                      d. 4 & 4
- 41) In a track circuit, the B.R. is always aimed to be \_\_\_\_\_ ohms ( )  
 a. zero to infinity                      b. zero                      c. infinity                      d. none
- 42) In a track circuit, the R.R. is always aimed to be \_\_\_\_\_ ohms ( )  
 a. zero to infinity                      b. zero                      c. infinity                      d. None
- 43) In a T.C., if F/E and R/E voltages are equal, then \_\_\_\_\_ is in good condition ( )  
 a. Ballast resistance                      b. Rail resistance  
 c. Variable resistance                      d. none



ST-21 : 'LED' COLOUR LIGHT SIGNAL

- 1) Non-Blanking arrangement in current regulator is provided for home signal aspects\_\_\_\_\_ ( )  
a. RG          b. HG          c. DG          d. UG
- 2) Blanking arrangement in current regulator is provided for home signal aspects\_\_\_\_\_ ( )  
a. RG          b. HG          c. DG          d. Both b & c
- 3) For Yellow aspect of a main signal \_\_\_\_\_ in current regulator ( )  
a. Blanking mode shall be selected  
b. Non-Blanking mode shall be selected  
c. Both a & b depending on the signal  
d. None
- 4) In the current regulator if Blanking / Non-Blanking mode is not selected, the C.R. by default\_\_\_\_\_ ( )  
a. works in Blanking mode                  b. works in Non-Blanking mode  
c. doesn't work                                  d. None
- 5) The power supply coupler of the current regulator gives \_\_\_\_\_ to the LED's in the main signal lighting unit ( )  
a. AC voltage          b. DC voltage          c. Frequency          d. None
- 6) If the input voltage of the current regulator is decreased from 137.5V to 82.5 V AC, the current taken by the current regulator\_\_\_\_\_ ( )  
a. decreases          b. increases          c. remains constant          d. None
- 7) If the input voltage of the current regulator is increased from 82.5V to 137.5 V AC, the current taken by the current regulator ( )  
a. decreases          b. increases          c. remains constant          d. None
- 8) In integrated signal LED unit, Blanking / Non-blanking is provided for \_\_\_\_\_( )  
a. RG unit                  b. HG unit                  c. DG unit                  d. All
- 9) Codal life of a LED signal is \_\_\_\_\_ ( )  
a. 2 years                  b. 6 years                  c. 8 years                  d. 10 years
- 10) \_\_\_\_\_type of 'AC LED ECR' is only to be used for LED signals ( )  
a. QSPA1                  b. QECX61                  c. QNA1                  d. both a & b
- 11) Jumpers on CR for selecting the type of \_\_\_\_\_ used in the circuit ( )  
a. power supply          b. ECR                  c. blanking & non blanking          d. all
- 12) When LED illumination falls below 40%, \_\_\_\_\_ forces to drop ECR ( )  
a. LED unit                  b. Sensors                  c. Current regulator          d. HMU



- 25) The rated fuse rating at Input terminals for Integrated LED unit ( )  
 a. 200ma b. 400 ma  
 c. 600ma d. 100 ma
- 26) In main signal lighting unit LED's are connected in\_\_\_\_\_combination ( )  
 a. series b. series-parallel c. parallel d. none
- 27) The main advantage of LED signals ( )  
 a. longer visibility b. life is more  
 c. power consumption is less d. All the above
- 28) The earth resistance of a signal unit should be less than ( )  
 a. 40 ohms b. 30 ohms c. 20 ohms d. 10 ohms
- 29) The S.I. unit for illuminance is\_\_\_\_\_ ( )  
 a. Flux b. Lux c. Newton d. Weber
- 30) The illumination measured at 1.5 meters from LED signal lighting unit in axial direction at rated voltage for RG LED unit should be\_\_\_\_\_ ( )  
 a. 150 LUX +40%, -10% b. 175 LUX +40%, -10%  
 c. 50 LUX +40%, -10% d. 30 LUX +40%, -10%
- 31) The illumination measured at 1.5 meters from LED signal lighting unit in axial direction at rated voltage for HG LED unit should be\_\_\_\_\_ ( )  
 a. 150 LUX +40%, -10% b. 175 LUX +40%, -10%  
 c. 50 LUX +40%, -10% d. 30 LUX +40%, -10%
- 32) The illumination measured at 1.5 meters from LED signal lighting unit in axial direction at rated voltage for DG LED unit should be \_\_\_\_\_ ( )  
 a. 150 LUX +40%, -10% b. 175 LUX +40%, -10%  
 c. 50 LUX +40%, -10% d. 30 LUX +40%, -10%
- 33) The illumination measured at 1.5 meters from LED signal lighting unit in axial direction at rated voltage for Calling-On LED unit should be \_\_\_\_\_ ( )  
 a. 150 LUX +40%, -10% b. 175 LUX +40%, -10%  
 c. 50 LUX +40%, -10% d. 30 LUX +40%, -10%
- 34) The illumination measured at 1.5 meters from LED signal lighting unit in axial direction at rated voltage for Route LED unit should be\_\_\_\_\_ ( )  
 a. 150 LUX +40%, -10% b. 175 LUX +40%, -10%  
 c. 50 LUX +40%, -10% d. 30 LUX +40%, -10%
- 35) The illumination measured at 1.5 meters from LED signal lighting unit in axial direction at rated voltage for Shunt LED unit should be\_\_\_\_\_ ( )  
 a. 150 LUX +40%, -10% b. 175 LUX +40%, -10%  
 c. 50 LUX +40%, -10% d. 30 LUX +40%, -10%
- 36) \_\_\_\_\_fuse rating is used for the LED signals lamp circuit ( )  
 a. 830 mA b. 530 mA c. 630 mA d. 730 mA

- 37) The working current of ECR relay is \_\_\_\_\_ ( )  
 a. 128 mA                      b. 148 mA                      c. 108 mA                      d. 208 mA
- 38) When one array fails in the main signal lighting unit ( )  
 a. ECR picks up              b. ECR drops              c. may pick up or drop              d. All
- 39) The minimum visibility distance of Main LED signal lighting unit shall be \_\_\_\_\_ in clear day light with peak sun rays at rated voltage ( )  
 a. 200 m                      b. 400m                      c. 500 m                      d. 600 m
- 40) The minimum visibility distance of Direction type Route Indicator with three lit LED signal lighting units shall be \_\_\_\_\_ in clear daylight with peak sun rays at rated voltage ( )  
 a. 200 m                      b. 400m                      c. 500 m                      d. 600 m
- 41) The minimum visibility distance of LED signal lighting units, other than Main and Route signal lighting units, shall be \_\_\_\_\_ in clear daylight with peak sun rays at rated voltage ( )  
 a. 200 m                      b. 400m                      c. 500 m                      d. 600 m
- 42) In blanking mode, a Main Signal Lighting Unit shall extinguish when input current drawn by the current regulator falls outside specified limits of rated input current or illumination falls to a value \_\_\_\_\_ ( )  
 a. which is not less than 30% of nominal illumination  
 b. which is not less than 40% of nominal illumination  
 c. which is not less than 50% of nominal illumination  
 d. which is not less than 60% of nominal illumination
- 43) In Non - blanking mode, a Main Signal Lighting Unit shall remain lit when input current drawn by the current regulator falls outside specified limits of rated input current or illumination falls to a value \_\_\_\_\_ ( )  
 a. which is less than 30% of nominal illumination  
 b. which is less than 40% of nominal illumination  
 c. which is less than 50% of nominal illumination  
 d. which is less than 60% of nominal illumination
- 44) In blanking mode, a Main Signal Lighting Unit shall extinguish when illumination falls to a value which is not less than 40% of nominal illumination due to a failure or any other reason. In such case, current regulator should not draw input current \_\_\_\_\_ at maximum rated voltage. ( )  
 a. more than 20 mA    b. more than 30 mA  
 c. more than 40 mA    d. more than 50 mA





## ST-22 : UNIVERSAL POINT MACHINE

- 1) The normal working current of Universal point machine ( )  
a. 2A-3A                      b. 3A-4A                      c. 5A-6A                      d. 8A-9A
- 2) For obstruction test, gauge is placed from the toe of switch at a distance of ( )  
a. 100 mm                      b. 120 mm                      c. 150 mm                      d. 175 mm
- 3) Point is reverse and locked condition\_\_\_\_\_indication relay picks up ( )  
a. NWKR                      b. RWKR                      c. WCR                      d. ASR
- 4) During point operation\_\_\_\_&\_\_\_\_contacts makes in universal point machine ( )  
a. ND & RD                      b. ND & RC                      c. NC & RC                      d. RC & RD
- 5) When point is set and locked in normal position, then\_\_\_\_\_makes. ( )  
a. RC contact                      b. NC contact                      c. ND contact                      d. a & c both
- 6) Drive rod is connected to\_\_\_\_\_ ( )  
a. point throw slide                      b. lock slide                      c. detection slide                      d. none
- 7) With\_\_\_\_relay picking up, 110v DC is extended to point location through bus bar ( )  
a. WLR                      b. WCR                      c. PCR                      d. None
- 8) "No Go Gauge Obstruction test"\_\_\_\_\_mm thick obstruction is placed between switch and stock rail. ( )  
a. 5 mm                      b. 3.25 mm                      c. 1.6 mm                      d. None
- 9) Friction clutch in IRS type point machine\_\_\_\_\_ ( )  
a. self adjusting                      b. not self adjusting  
c. adjusted at workshop only                      d. a & c are correct
- 10) The stroke of IRS type electric Point Machine is\_\_\_\_\_mm ( )  
a) 115                      b) 143                      c) 200                      d) 100
- 11) The total movement of drive disc is\_\_\_\_\_ ( )  
a. 220 degrees                      b. 270 Degrees  
c. 180 degrees                      d. 360 degrees
- 12) Obstruction current shall be\_\_\_\_\_times the normal working current. ( )  
a. 1.5 to 2.5                      b.1.5 to 2.0                      c. 1.5 to 3.5                      d. 2 times
- 13) When crank handle is inserted for cranking ( )  
a. 110V DC positive is cut off                      b. 110V DC negative is cut off  
c. 24V DC is cut off                      d. a & c are correct
- 14) Which Relay functions as timer in point circuit ( )  
a. WXR                      b. WJR                      c. WCR                      d. WLR
- 15) During obstruction test of machine operated point with 5mm test piece\_\_\_\_\_ ( )  
a. Point shall not lock                      b. Friction clutch shall slip  
c. Detection contacts shall not make                      d. all

- 16) The stroke of Point Machine used for Thick Web layout is \_\_\_mm ( )  
 a) 115                      b) 143                      c) 220                      d) 160
- 17) The opening of stock rail and tongue rail in TWS layout is \_\_\_mm ( )  
 a) 115                      b) 160                      c) 200                      d) 100
- 18) TWS layout is provided with \_\_\_\_\_type of locking ( )  
 a) Direct locking                                      b) Indirect locking  
 c) both a and b                                      d) No locking is provided
- 19) Voltage required to operate TWS point is \_\_\_\_\_ ( )  
 a) 24 V DC                      b) 110 V AC                      c) 12 V DC                      d) None
- 20) Periodical lubrication checks for all gears of point machine should be done at least once in \_\_\_\_\_by technician. ( )  
 a) Daily                      b) 7 days                      c) 15 days                      d) 30 days
- 21) Point detection circuit voltage is \_\_\_\_\_ ( )  
 a) 24 V DC                      b) 110 V DC                      c) 12 V DC                      d) None
- 22) In universal point machine \_\_\_\_\_locking is provided. ( )  
 a) In and Out type                      b) Rotary type                      c) Both a and b                      d) None
- 23) \_\_\_\_\_type of motor is used in IRS electric point machine ( )  
 a) DC Motor                      b) Series Motor                      c) Split field motor                      d) All
- 24) The possibility of both slides moving together due to rust in case one slide connecting rod breaks is prevented by the provision of \_\_\_\_\_between them. ( )  
 a) Lubrication                      b) Brass plates                      c) Iron plates                      d) None
- 25) In a cross over point, both the points are operated in ( )  
 a) Series                      b) Parallel                      c) Series Parallel                      d) None
- 26) In a cross over point, Both the points are detected in ( )  
 a) Series                      b) Parallel                      c) Series Parallel                      d) None
- 27) Friction clutch in a point machine is a part of ( )  
 a) Crank handle cut out assembly                      b) Transmission assembly  
 c) Reduction gear assembly                      d) Contactor unit
- 28) Which of the following is not associated with a point machine ( )  
 a) Track locking test                                      b) Correspondence test  
 c) "No go" test                                      d) Fail safe adjustment
- 29) Which of the following is not associated with a point machine ( )  
 a) 110 V DC                      b) 24 V DC                      c) Cross protection                      d) 110 V AC

- 30) With 3.25mm test piece placed at 150 mm from toe of the switch, ( )  
 a) Detection contacts should just make      b) detection contacts should break  
 c) detection contacts should just break      d) None of the above
- 31) With 1.6 mm test piece placed at 150 mm from toe of the switch, ( )  
 a) Detection contacts should just make      b) detection contacts should break  
 c) detection contacts should just break      d) None of the above
- 32) When a point is operated from N to R With 5 mm test piece placed at 150 mm from toe of the switch, ( )  
 a) NC & RC break      b) NC& RC make      c) ND & RC break      d) None
- 33) With 5 mm test piece placed at 150 mm from toe of the switch, ( )  
 a) Lock dog should not enter lock slide notch  
 b) Detection contacts should not make  
 c) Friction clutch should declutch  
 d) All the above
- 34) Insulation grade of winding in a motor of a point machine shall be ( )  
 a) More than 100 M Ohms      b) More than 10 M Ohms  
 c) More than 10 Ohms      c) None of the above
- 35) AC immunity of point motor is ( )  
 a) 160 V DC      b) 160 V AC      c) Both      d) None
- 36) When point is set in N and locked, the following contacts make ( )  
 a) NC & ND      b) ND & RC      c) NC & RC      d) RD & NC
- 37) When point is set in R and locked, the following contacts make ( )  
 a) NC & ND      b) ND & RC      c) NC & RC      d) RD & NC
- 38) When point is not set in N or R, the following contacts make ( )  
 a) NC & ND      b) ND & RC      c) NC & RC      d) RD & NC
- 39) Mode of locking in TWS point layout is ( )  
 a) Rotary type      b) Clamp type      c) In and out type      d) Both a and b
- 40) Mode of locking in conventional IRS point layout is ( )  
 a) Rotary type      b) Clamp type      c) In and out type      d) Both a and b
- 41) As per Schedule of maintenance, SEM para 19.148, Voltages and Currents shall be measured at motor terminals in a point machine by signal maintainer once in( )  
 a) Fortnight      b) Month  
 c) Month in presence of JE/SSE      d) Quarter in presence of JE/SSE
- 42) As per Schedule of maintenance, SEM para 19.148, Obstruction test for a point machine to be conducted by signal maintainer once in ( )

- a) Fortnight  
c) Quarter
- b) Month  
d) Quarter in presence of JE/SSE
- 43) Crank handle key provided for manual operation of the points worked by electric point machine must be interlocked with ( )  
a) signal HR circuit  
b) Point operation circuit  
c) WLR circuit  
d) Point detection circuit
- 44) The crank handle key for each group of point machines should be so arranged that they ( )  
a) Can be interchanged if required  
b) have same for all points  
c) Cannot be interchanged  
d) None
- 45) Maximum permissible parallelism in meters between Point Contactor and Point Motor (160 V AC immunity) on single line is ( )  
a) 910  
b) 1000  
c) 1100  
d) 1500
- 46) Maximum permissible parallelism in meters between Point Contactor and Point Motor (160 V AC immunity) on double line is ( )  
a) 910  
b) 1000  
c) 1100  
d) 1500
- 47) Inspection and cleaning of inside equipment by opening the covers of point machines comes under ( )  
a) Group A works  
b) Group B works  
c) Group C works  
d) None
- 48) A point machine should be provided at a minimum distance of \_\_\_\_\_ meters from centre line of track (CLAT) ( )  
a) 1  
b) 1.5  
c) 1.6  
d) None
- 49) Which of the following is true for Track locking test conducted on point machine( )  
a) Point does not operates when track drop  
b) Point operation to complete even if track drops during operation  
c) Both a and b  
d) None
- 50) During obstruction in the point, the feed to point is automatically disconnected within \_\_\_\_\_ times the normal operating time of point ( )  
a) 1.5  
b) 1.5 to 2  
c) 3  
d) None
- 51) In a point machine, Conversion of rotary motion into linear motion is achieved by( )  
a) Friction clutch assembly  
b) rack and pinion arrangement.  
c) Reduction gear assembly  
d) Friction clutch
- 52) In TWS layout, the clearance at junction of rail head (JOH) is ( )  
a) 60 mm  
b) 115 mm  
c) 220 mm  
d) None

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
a	c	b	c	d	a	c	a	d	b
11	12	13	14	15	16	17	18	19	20
b	b	b	b	d	c	b	c	d	c
21	22	23	24	25	26	27	28	29	30
a	b	d	b	b	a	b	d	d	c
31	32	33	34	35	36	37	38	39	40
a	b	d	b	b	b	d	c	d	a
41	42	43	44	45	46	47	48	49	50
c	a	a	c	a	c	a	c	c	b
51	52	53	54	55	56	57	58	59	60
b	a								

## ST-23a : PANEL INTERLOCKING (BRITISH SYSTEM)

- 1) Calling on signal initiation time is \_\_\_\_\_ sec ( )  
a) 60                                      b) 90                                      c) 120                                      d) 240
- 2) Calling on signal below starter can be initiated ( )  
a) after 60 sec  
b) Immediately after berthing track is occupied  
c) 120 sec after berthing track is occupied  
d) Immediately without berthing track is occupied
- 3) Calling on signal will not detect points in \_\_\_\_\_ ( )  
a) Route                                      b) Isolation                                      c) overlap                                      d) none
- 4) Relay which ensures one signal one calling on principle is \_\_\_\_\_ ( )  
a) COJSLR                                      b) CONJPR                                      c) COCAR                                      d) COAR
- 5) Calling on signal will lock \_\_\_\_\_ ( )  
a) Stop signal above it                                      b) Shunt signal below it  
c) a & b                                      d) none
- 6) Indication locking is proved in \_\_\_\_\_ Circuit ( )  
a) TSR                                      b) ASR                                      c) UCR                                      d) HR
- 7) Back/route locking is proved in \_\_\_\_\_ Circuit ( )  
a) TSR                                      b) ASR                                      c) UCR                                      d) HR
- 8) Indication locking is achieved through \_\_\_\_\_ ( )  
a) Signal controlling relays                                      b) Signal lamp checking relays  
c) back lock TPR's                                      d) a & b
- 9) Back/route locking is achieved through \_\_\_\_\_ ( )  
a) Signal controlling relays                                      b) Signal lamp checking relays  
c) TPR's                                      d) a & c
- 10) Calling on signal can be provided below \_\_\_\_\_ ( )  
a) Adv starter                                      b) Adv starter and Routing home  
c) Adv starter and starter                                      d) FSS and routing home
- 11) Calling on signal cannot be provided below \_\_\_\_\_ ( )  
a) Adv starter                                      b) Routing home                                      c) Starter                                      d) First stop signal
- 12) Color of SH signal button/knob as per SEM is \_\_\_\_\_ ( )  
a) Red                                      b) Red with white dot  
c) Yellow                                      d) Yellow with white dot
- 13) Aspect of signal ahead is proved in \_\_\_\_\_ Circuit ( )  
a) HR                                      b) UCR                                      c) TSR                                      d) ASR

- 14) Relay which prevents unauthorized operation of panel is\_\_\_\_\_ ( )  
a) TSR                      b) UCR                      c) SMR                      d) HR
- 15) Re clearance of signal after train movement even though signal knob is reverse is prevented by\_\_\_\_\_relay ( )  
a) RR                      b) UCR                      c) UGR                      d) TSR
- 16) Previous routes released & signal knob normalized is proved in\_ relay circuit ( )  
a) RR                      b) TSR                      c) UCR                      d) JSLR
- 17) \_\_\_\_\_ is proved to achieve approach locking ( )  
a) UCR                      b) TSR                      c) Approach TPR      d) b and C
- 18) Back lock TPR's are proved in\_\_\_\_\_ ( )  
a) ASR                      b) JSLR                      c) TSR                      d) a and b
- 19) Point indication near point knob is given through\_\_\_\_\_ ( )  
a) WKPR                      b) WSR                      c) WKR                      d) WLR
- 20) Aspect of signal ahead not blank is proved in\_\_\_\_\_ ( )  
a) Calling ON signal HR                      b) Main signal HR  
c) Shunt signal HR                      d) all
- 21) Combined TSR can be provided for signals with\_\_\_\_\_ ( )  
a) Same route                      b) Conflicting to each other  
c) common controlling TC                      d) all
- 22) Combined ASR can be provided for signals with\_\_\_\_\_ ( )  
a) Same route                      b) Conflicting to each other  
c) common controlling TC                      d) all
- 23) To achieve locking of conflicting signals\_\_\_\_\_is proved ( )  
a) Front contact of ASR      b) Back contact of UCR      c) Back contact of RR      d) all
- 24) UCR back contact is proved in\_\_\_\_\_circuit ( )  
a) RLR                      b) RR                      c) ASR                      d) NJPR
- 25) Indication locking and back/route locking is proved in\_\_\_\_\_circuit ( )  
a) UCR                      b) ASR                      c) WLR                      d) HR
- 26) Proving aspect of signal ahead is for\_\_\_\_\_ ( )  
a) Flexibility                      b) Safety                      c) Red lamp protection      d) b and c
- 27) OVSR will hold the points in the\_\_\_\_\_ ( )  
a) Overlap                      b) Isolation                      c) Route                      d) b and c
- 28) For stopping train OVSR picks up\_\_\_\_\_ ( )  
a) after 60 sec                      b) after 120 sec                      c) immediately                      d) none

- 29) \_\_\_\_relay is normally in energized condition ( )  
 a) UCR                      b) JSLR                      c) OVSR                      d) UYR
- 30) Relay controlling the caution aspect of the signal is \_\_\_\_\_ ( )  
 a) DR                      b) HHR                      c) UGR                      d) HR
- 31) Relay controlling the Attention aspect of the signal is \_\_\_\_\_ ( )  
 a) HHR                      b) DR                      c) HR                      d) UGR
- 32) Relay controlling the proceed aspect of signal is \_\_\_\_\_ ( )  
 a) DR                      b) HHR                      c) HR                      d) UGR
- 33) Point zone TPR contacts are proved in \_\_\_\_\_ ( )  
 a) UCR                      b) WLR                      c) TSR                      d) UGR
- 34) Point zone TPR is bypassed with\_\_\_\_\_in WLR circuit ( )  
 a) WLR front contact                      b) WLR back contact  
 c) ASR front contact                      d) ASR back contact
- 35) WLR back contact is proved as cross protection contact in\_\_\_\_\_circuit ( )  
 a) WKR      b) WSR      c) WKPR      d) NWR/RWR
- 36) Route slit indication on panel is given through\_\_\_\_\_contact ( )  
 a. UCR pick up      b. HR pick up      c. ASR drop      d. ASR UP
- 37) Point slit indication on the panel is given through\_\_\_\_\_contact ( )  
 a. WKR UP      b. WKPR UP      c. WSR UP      d. ASR UP
- 38) \_\_\_\_\_Relay initiates route cancellation ( )  
 a. JSLR      b. RJPR      c. NJPR      d. ASR
- 39) \_\_\_\_relay picks up when signal knob is reversed ( )  
 a) TSR                      b. UCR                      c. ASR                      d. NJPR
- 40) Point Free indication near point knob is given through\_\_\_\_\_ ( )  
 a) ASR ↑ and Point zone TPR ↑                      b) NCR ↑ / RCR ↑  
 c) UCR ↓ and HR ↓                      d. WLR ↑
- 41) Interlocking between conflicting signals is achieved in\_\_\_\_\_circuit. ( )  
 a) UCR and ASR      b) UCR and TSR      c) UCR and HR      d) TSR and HR
- 42) \_\_\_\_is provided to prevent vital circuits do not operate with false feed ( )  
 a. Red lamp protection                      b. Double cutting  
 c. Cross protection                      d. b & c
- 43) \_\_\_\_locking is provided where there are no track circuits in rear of the signal ( )  
 a) Approach                      b) Dead approach                      c) Track                      d) all



- 44) \_\_\_\_\_locking is provided for the purpose of safety ( )  
 a) Approach                      b) Dead approach    c) Track                      d) all
- 45) The correspondence of point knob is proved in\_\_\_\_\_ ( )  
 a) WSR                      b) WKPR                      c) WKR                      d) all
- 46) NCR/RCR contacts are proved in\_\_\_\_\_ ( )  
 a) WLR                      b) WSR                      c) WKPR                      d) all
- 47) TPR's are not proved in \_\_\_\_\_ ( )  
 a) ASR                      b) UCR                      c) JSLR                      d) UYR's
- 48) In home/calling-on RLR circuit \_\_\_\_\_ interlocking condition is proved ( )  
 a) partial                      b) complete                      c) no                      d) none
- 49) All the conditions for clearing the signal is proved in\_\_\_\_\_ circuit ( )  
 a) WLR                      b) ASR                      c) UCR                      d) HR
- 50) Colour of signal knob is\_\_\_\_\_ ( )  
 a) Red                      b) yellow                      c) blue                      d) grey
- 51) \_\_\_\_\_relay picks up after a time lag ( )  
 a) JSLR                      b) NJPR                      c) UYR                      d) COCAR
- 52) \_\_\_\_\_relay picks up when calling on track is occupied ( )  
 a) JSLR                      b) NJPR                      c) COAR                      d) COCAR
- 53) \_\_\_\_\_relays are made slow to release ( )  
 a) COCAR                      b) JSLR                      c) UYR                      d) all
- 54) \_\_relay picks when cancellation button is pressed in route locked condition ( )  
 a) UYR                      b) TSR                      c) JSLR                      d) none
- 55) \_\_\_\_is mandatory to prove in signal control circuit ( )  
 a) Signal in advance and rear must not be blank  
 b) Signal in advance must not be blank  
 c) neither advance nor rear signal condition is proved  
 d) Signal in rear must not be blank
- 56) Length of approach track for providing approach locking on home signal is\_\_( )  
 a) 1 km                      b) 1.4 km                      c) 65 mt                      d) none
- 57) Controlling and back lock tracks are same for\_\_\_\_\_signal ( )  
 a) home                      b) calling on                      c) starter                      d) shunt
- 58) Controlling and back lock tracks are different for\_\_\_\_\_signal ( )  
 a) home                      b) starter                      c) shunt                      d) a and b



- 70) UCR back contact is proved in \_\_\_\_\_ circuit ( )  
a) RLR                      b) RR                      c) ASR                      d) NJPR
- 71) Incorrect statement regarding TSR is, \_\_\_\_\_ ( )  
a) normally in energized condition                      b) holds through stick path  
c) proved in ASR for approach locking                      d) proved in UCR circuit
- 72) Incorrect statement regarding COAR is \_\_\_\_\_ ( )  
a) normally in drop condition  
b) picks up when calling on track occupied  
c) pick up contact is not proved in CO HR  
d) pick up contact is proved in CO HR
- 73) Incorrect statement regarding SMR is, \_\_\_\_\_ ( )  
a) pick up contact is proved in ASR  
b) pick up contact is proved in UCR  
c) pick up contact is proved in NCR/RCR  
d) JSLR
- 74) Incorrect statement regarding UCR is, \_\_\_\_\_ ( )  
a) track pick up condition is proved                      b) must be an authorized operation  
c) concern crank handle IN                      d) conflicting signals are not taken off
- 75) \_\_\_\_\_ relay proves that cancellation circuit is not in progress ( )  
a) JSLR                      b) RJPR                      c) COCAR                      d) all
- 76) Relays which pick up during the train movement to release the route after train movement is, \_\_\_\_\_ ( )  
a) ASR's/ASPR's                      b) COAR/COCAR                      c) JSLR/NJPR                      d) UYR's
- 77) Siding normal proving relay is \_\_\_\_\_ ( )  
a) Siding YPR                      b) Siding SPR                      c) Siding NPR                      d) Siding RPR
- 78) \_\_\_\_\_ relay proves that prescribed time is lapsed during cancellation ( )  
a) ASR                      b) COCAR                      c) NGPR                      d) NJPR
- 79) Lamp failure indication relay is \_\_\_\_\_ ( )  
a) GXJR                      b) JXGR                      c) GEJR                      d) LFJR
- 80) UYR's are made slow to release, \_\_\_\_\_ ( )  
a) till ASR picks up  
b) till ASR picks up and holds through its last repeater relay

- c) till JSLR picks up and holds through its last repeater relay  
d) none
- 81) JSLR is made slow to release\_\_\_\_\_ ( )  
a) till ASR picks up  
b) till ASR picks up and holds through its last repeater relay  
c) till JSLR picks up and holds through its last repeater relay  
d) none
- 82) GXJR will be\_\_\_\_\_ ( )  
a) Normally energized relay                      b) Normally de-energized relay  
c) pick up when signal is operated              d) pick up when signal is blank
- 83) For operation of points in route setting type RRI\_\_\_\_\_position point switches are used. ( )  
a) single                      b) two                      c) three                      d) all
- 84) The 3 positions of point switch in RRI are\_\_\_\_\_ ( )  
a) Normal position                      b) centre position  
c) reverse position                      d) all
- 85) For auto operation of points in RRI, point switch must be in\_\_\_\_\_position ( )  
a) normal position                      b) reverse position  
c) centre position                      d) none
- 86) GNR is\_\_\_\_\_ ( )  
a) point button relay                      b) route button relay  
c) all signal button normal relay              d) none
- 87) All signal button normal relay is\_\_\_\_\_ ( )  
a) UNR                      b) GNCR                      c) GNR                      d) UNCR
- 88) All point button normal relay is\_\_\_\_\_ ( )  
a) WNCR                      b) WNR                      c) WRR                      d) WCNR
- 89) GN is\_\_\_\_\_ ( )  
a) route button                      b) common route button  
c) signal button                      d) common signal button
- 90) Route setting type interlocking is also called as\_\_\_\_\_ ( )  
a) Entry and Entry type                      b) Entry and Exit type  
c) Exit and Exit type                      d) none
- 91) Color light signaling is\_\_\_\_\_ ( )  
a) compulsory in RRI                      b) compulsory in PI  
c) optional in PI                      d) a and c



ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
a	b	c	d	c	b	b	d	c	d
11	12	13	14	15	16	17	18	19	20
a	c	a	c	d	b	d	d	c	b
21	22	23	24	25	26	27	28	29	30
d	d	d	c	b	d	a	b	c	d
31	32	33	34	35	36	37	38	39	40
a	a	b	a	d	c	b	a	b	a
41	42	43	44	45	46	47	48	49	50
c	d	b	d	c	a	b	c	d	a
51	52	53	54	55	56	57	58	59	60
b	c	d	c	b	a	d	d	d	d
61	62	63	64	65	66	67	68	69	70
d	d	d	d	c	a	d	c	b	c
71	72	73	74	75	76	77	78	79	80
d	c	a	a	b	d	c	d	a	b
81	82	83	84	85	86	87	88	89	90
b	a	c	d	c	d	b	a	c	b
91	92	93	94	95	96	97	98	99	100
d	a	c	b	c	c	a	d	a	d



- 15) The 8 LEDs on the MLB Card denotes \_\_\_ error code in CEL SSDAC ( )  
 a. Binary                      b. Octa Decimal      c. Hexa Decimal      d. Decimal
- 16) The Event Logger has \_\_\_ MB Flash Memory to store packets in CEL SSDAC ( )  
 a. 2                              b. 4                              c. 6                              d. 8
- 17) In CEL SSDAC Event Logger card \_\_\_\_\_ Pages of data can be stored in Flash Memory. ( )  
 a. 1024                      b. 2048                      c. 4096                      d. 512
- 18) In CEL SSDAC the data can be stored in Flash Memory in \_\_\_ basis ( )  
 a. LIFO                      b. LILO                      c. FILO                      d. FIFO
- 19) The Modem card will have \_\_\_ FSK Modem chip in CEL SSDAC ( )  
 a. 7510                      b. 7410                      c. 7610                      d. 7710
- 20) The Error logs can be viewed by pressing the Reset button for \_\_\_ seconds in CEL SSDAC ( )  
 a. 5                              b. 7                              c. 8                              d. 10
- 21) DIP Switch setting for Entry Unit Reset Box for CEL SSDAC is \_\_\_\_\_ ( )  
 a. OFF, OFF, OFF, OFF                      b. OFF, OFF, OFF, ON  
 c. OFF, OFF, ON, OFF                      d. OFF, OFF, ON, ON
- 22) DIP Switch setting for Exit Unit Reset Box for CEL SSDAC is \_\_\_\_\_ ( )  
 a. OFF, OFF, OFF, OFF                      b. OFF, OFF, OFF, ON  
 c. OFF, OFF, ON, OFF                      d. OFF, OFF, ON, ON
- 23) The condition of jumpers J1 and J2 in CEL SSDAC is \_\_\_\_\_ ( )  
 a. Short Open                      b. Open Short                      c. Short short                      d. Open Open
- 24) The push button and SM's Key are connect \_\_\_ in CEL SSDAC ( )  
 a. Series                      b. Parallel                      c. Independent                      d. None
- 25) Tx coil voltage is \_\_\_ in CEL SSDAC ( )  
 a. 30 – 40 v                      b. 40 – 50 v                      c. 50 – 60 v                      d. 60 – 70 v
- 26) The GG Tronics SSDAC system can be configurable as \_\_\_\_\_ ( )  
 a. 2DP 1S                      b. 3DP 1S                      c. 3DP 2S                      d. All
- 27) The baud rate for communication between SF & EF units is \_\_\_\_\_ in GGTronics SSDAC ( )  
 a. 300 bps                      b. 600 bps                      c. 900 bps                      d. 1200 bps
- 28) \_\_\_ Frequencies are used for driving Axle detectors in GG Tronics SSDAC ( )  
 a. 21 & 23 KHz                      b. 21 & 25 KHz                      c. 21 & 27 KHz                      d. 30 & 31 KHz





- 43) End Fed CPU-2 will have an address of \_\_ in GG Tronics SSDAC ( )  
 a. 01 h                      b. 02 h                      c. 03 h                      d. 04 h
- 44) Start Fed configuration is \_\_ in GG Tronics SSDAC ( )  
 a. 01 h                      b. 02 h                      c. 03 h                      d. 04 h
- 45) End Fed configuration is \_\_ in GG Tronics SSDAC ( )  
 a. 01 h                      b. 02 h                      c. 03 h                      d. 04 h
- 46) CPU address has to set from links \_\_\_\_\_ to \_\_\_\_\_ for GG Tronics SSDAC ( )  
 a. LK 17 – LK 10                                      b. LK 18 – LK 11  
 c. LK 25 – LK 18                                      d. LK 26 – LK 17
- 47) System configuration has to set from links \_\_ to \_\_ for GG Tronics SSDAC ( )  
 a. LK 17 – LK 10                                      b. LK 18 – LK 11  
 c. LK 25 – LK 18                                      d. LK 26 – LK 17
- 48) The RX signal voltage is \_\_ when there is no wheel in GG Tronics SSDAC ( )  
 a. 900 mv – 1.2 v                                      b. 800 mv – 1.2 v  
 c. 1 v – 1.2 v    d. 1.2 v – 1.4
- 49) Wheel main & Wheel sec voltage will drop to \_\_\_\_\_ volts when wheel is passing in GG Tronics SSDAC ( )  
 a. < 100 mv                      b. < 120 mv                      c. < 140 mv                      d. < 160 mv
- 50) SUP Level voltage is \_\_\_\_\_ in GG Tronics SSDAC when there is no wheel ( )  
 a. 4 – 5 v                      b. 3 – 3.9 v                      c. 2 – 3 v                      d. 1 – 2 v
- 51) What are the TX frequencies used for Eldyne make MSDAC ( )  
 a. 21KHZ & 23 KHZ                                      b. 21KHZ & 25 KHZ  
 c. 31KHZ & 33 KHZ                                      d. 28KHZ & 30.6 KHZ
- 52) Power consumption for each DP in Eldyne make SSDAC ( )  
 a. 11.5 w                      b. 55 w                      c. 95 w                      d. 135 w
- 53) In Eldyne Max power consumption for ACE 2 - 10 DP's is ( )  
 a. 11.5 w                      b. 55 w                      c. 95 w                      d. 135 w
- 54) In Eldyne Max power consumption for ACE 2 - 26 DP's is ( )  
 a. 11.5 w                      b. 55 w                      c. 95 w                      d. 135 w
- 55) In Eldyne Max power consumption for ACE 2 - 42 DP's is ( )  
 a. 11.5 w                      b. 55 w                      c. 95 w                      d. 135 w
- 56) In Eldyne Range of voltage at DP's is \_\_\_\_\_ ( )  
 a. 54 to 120V DC                                      b. 21.5 to 28.8 V AC  
 c. 30 to 40 V DC                                      d. 36 to 52 V DC

- 57) In Eldyne maximum communication distance between ACE and DP is \_\_\_\_\_KM  
with 60 V DC centralized power supply and 0.9 mm Quad cable ( )  
a. 1.5 KM                      b. 4.2 KM                      c. 8 KM                      d.16 KM
- 58) In Eldyne maximum communication distance between ACE and DP is \_\_\_\_\_KM  
with 110 V DC centralized power supply and 0.9 mm Quad cable ( )  
a. 1.5 KM                      b. 4.2 KM                      c. 8 KM                      d.16 KM
- 59) In Eldyne maximum communication distance between ACE and DP is \_\_\_\_\_  
KM with 60 / 110 V DC local power supply and 0.9 mm Quad ( )  
a. 1.5 KM                      b. 4.2 KM                      c. 8 KM                      d.16 KM
- 60) In Eldyne the ACE deals with maximum of \_\_\_\_\_DP's ( )  
a. 10                      b. 22                      c. 32                      d. 40
- 61) In Eldyne DP's address setting is provided in \_\_\_\_\_board ( )  
a. Digital board              b. Analog board              c. Mother board              d. none
- 62) In Eldyne MESSAB adjustment is done in \_\_\_\_\_board ( )  
a. Digital board              b. Mother board              c. Analog board              d. none
- 63) In Eldyne analog wheel pulse is known as \_\_\_\_\_ ( )  
a. MESSAB                      b. RADIMP                      c. PEGUE                      d. None
- 64) In Eldyne digital wheel pulse is known as \_\_\_\_\_ ( )  
a. MESSAB                      b. RADIMP                      c. PEGUE                      d. None
- 65) In Eldyne Digital board is also known as \_\_\_\_\_ board ( )  
a. ISDN board    b. Communication board  
c. CPU    d. Mother board
- 66) In Eldyne Digital board transmits Data to ACE using \_\_\_\_ protocol ( )  
a. ISDN                      b. TCPIP                      c. Communication                      d.FSK
- 67) In Eldyne, power supply unit occupies \_\_\_\_\_ & \_\_\_\_\_ slots of 1<sup>st</sup> basic  
sub rack ( )  
a. 1<sup>st</sup> and 4<sup>th</sup>                      b. 1<sup>st</sup> and 2<sup>nd</sup>                      c. 1<sup>st</sup> and 3<sup>rd</sup>                      d. 3<sup>rd</sup> and 4<sup>th</sup>
- 68) In Eldyne power supply unit generates \_\_\_\_\_ & \_\_\_\_\_ supplies ( )  
a. 5V DC & 12V DC                                      b. 5V, 12V, 24V & Iso 15V DC  
c. 5V, +12V, -12V, +18V, +24V DC              d. 5V,+12V, -12V, +24V DC
- 69) In Eldyne serial I / O board receives data from \_\_\_\_\_ ( )  
a. Track side equipment                              b. PDCU  
c. ACE    d. Parallel I / O board

- 70) In Eldyne each serial I / O board assigned to maximum\_\_\_\_\_number of detection points ( )  
 a. 1                                      b. 2                                      c. 3                                      d. 4
- 71) Track occupancy information is provided by\_\_\_\_\_board in Eldyne. ( )  
 a. Serial I / O board    b. Parallel I / O board    c. Digital board    d. CPU board
- 72) In Eldyne each parallel I / O module outputs\_\_\_\_relay contacts ( )  
 a. 1                                      b. 2                                      c. 3                                      d. 4
- 73) In Eldyne manual local reset can be done by using a key switch mounted on the front panel of the\_\_\_\_\_module ( )  
 a. Serial I / O              b. Parallel I / O              c. Power supply              d. CPU board
- 74) In Eldyne Rail contacts (sk) are fixed with\_\_\_\_\_bolts ( )  
 a. M8                                      b. M10                                      c. M12                                      d. M14
- 75) In Eldyne spanner used to tight the rail contacts is\_\_\_\_\_ ( )  
 a. 13mm                                      b. 14mm                                      c. 12mm                                      d. 10mm
- 76) In Eldyne\_\_\_\_\_torque is to be applied for fixing of Rail contacts ( )  
 a. 25 Nm                                      b. 45 Nm                                      c. 35 Nm                                      d. 15 Nm
- 77) In Eldyne MESSAB adjustment is done with\_\_\_\_\_potentiometer ( )  
 a. R1                                      b. R2                                      c. R3                                      d. R4
- 78) PEGUE adjustment in Eldyne is done with\_\_\_\_\_potentiometer ( )  
 a. R1                                      b. R2                                      c. R3                                      d. R4
- 79) In Eldyne drill bit size for making holes of Rail contacts ( )  
 a. 13mm                                      b. 14mm                                      c. 12mm                                      d. 11mm
- 80) In Eldyne\_\_\_\_\_number of wires are connected between PDCU and track side electronic equipment ( )  
 a. 2                                      b. 3                                      c. 4                                      d. 5
- 81) In Eldyne serial interface of diagnostic PC is connected to\_\_\_\_\_ ( )  
 a. Left side PC              b. Right side PC              c. Both              d. None
- 82) In Eldyne ethernet interface of diagnostic PC is connected to\_\_\_\_\_ ( )  
 a. Left side PC              b. Right side PC              c. Both              d. None
- 83) Eldyne make rail contacts will monitor up to a train speed of\_\_\_\_\_kmph ( )  
 a. 250 kmph              b.300 kmph              c. 350 kmph              d. 380 kmph
- 84) In Eldyne rectifiedRX1 voltage (MESSAB1) without dummy wheel is\_\_\_\_\_( )  
 a. + 80 ----- + 1000 mV              b. – 80 ----- –1000 mV  
 c. + 40 ----- + 1000 mV              d. – 40 ----- –1000 mV

- 85) In Eldyne rectified RX1 voltage (MESSAB1) with dummy wheel is \_\_\_\_\_ ( )  
 a. + 80 ----- + 1000 mV                      b. – 80 ----- –1000 mV  
 c. + 40 ----- + 1000 mV                      d. – 40 ----- –1000 mV
- 86) In Eldyne transmitter coil SK , voltage is \_\_\_\_\_ ( )  
 a. 40 to 85V AC      b. 30 to 40V AC      c. 60 to 80V AC      d. 30V AC
- 87) Superimposed power and data line are connected to \_\_\_\_\_ terminals at EAK in Eldyne ( )  
 a. 3, 13                      b. 2, 12                      c. 1, 10                      d. 2, 3
- 88) \_\_\_\_\_ & \_\_\_\_\_ terminals are shorted if same pair of conductors is used for super imposed data and power supply is used to EAK in Eldyne ( )  
 a. 2 & 1, 12 & 11      b. 2 & 1, 13 & 3      c. 3 & 4, 12 & 11      d. 3 & 4, 13 & 3
- 89) In Eldyne if separate power supply is used for installation at EAK \_\_\_\_\_ terminals are used for communication link ( )  
 a. 3 & 13                      b. 2 & 1                      c. 1 & 11                      d. 3 & 4
- 90) In Eldyne, if separate power supply is used for installation at EAK \_\_\_\_\_ terminals are used for connecting power supply ( )  
 a. 3 & 13                      b. 2 & 1                      c. 1 & 11                      d. 3 & 4
- 91) The EAK has to be connected to the earth with a copper cable of minimum \_\_\_\_\_ sq. mm in Eldyne ( )  
 a. 25 sq.mm.                      b. 16 sq.mm.                      c. 10 sq.mm.                      d. 6 sq.mm.
- 92) In Eldyne the EAK housing has to be earthed with the earth resistance of \_\_\_\_\_ ohm ( )  
 a. 1                      b. 10                      c. Less than 4                      d. 5
- 93) \_\_\_\_\_ diode is provided across Vital Relay in Eldyne ( )  
 a. IN 4007                      b. IN 2804                      c. IN 5408                      d. BY 127
- 94) One parallel I / O board monitors \_\_\_\_\_ track sections in Eldyne ( )  
 a. 1                      b. 2                      c. 3                      d. 4
- 95) In Eldyne PDCU is \_\_\_\_\_ between outdoor equipment (DP) and indoor equipment (ACE) ( )  
 a. Interface                      b. Interconnection                      c. Mediator                      d. None
- 96) In Eldyne \_\_\_\_\_ mA fuse is provided inside PDCU ( )  
 a. 315 mA                      b. 680 mA                      c. 1A                      d. 2A
- 97) In Eldyne resetting pulse duration is \_\_\_\_\_ sec ( )  
 a. 3 sec                      b. 4 sec                      c. 5 sec                      d. 2 sec

- 98) In Eldyne \_\_\_\_\_mA fuse is provided in Reset box ( )  
 a. 500 mA                      b. 315 mA                      c. 680 mA                      d. 1 A
- 99) In Eldyne fuse provided in Reset box is of \_\_\_\_\_type ( )  
 a. Fast blown glass fuse                      b. Slow blown glass fuse  
 c. HRC fuse                      d. Knife edge fuse
- 100) In Eldyne dummy wheel should be set at \_\_\_\_\_mm for testing ( )  
 a. 20mm                      b. 30mm                      c. 40mm                      d. 50mm

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
d	a	c	c	d	d	c	b	c	d
11	12	13	14	15	16	17	18	19	20
b	a	d	c	c	a	c	d	a	d
21	22	23	24	25	26	27	28	29	30
a	b	a	a	a	d	d	b	b	d
31	32	33	34	35	36	37	38	39	40
d	d	c	d	d	b	d	c	a	a
41	42	43	44	45	46	47	48	49	50
b	c	d	a	b	a	c	a	a	a
51	52	53	54	55	56	57	58	59	60
d	a	b	c	d	a	a	b	c	c
61	62	63	64	65	66	67	68	69	70
c	c	a	b	a	a	a	a	a	b
71	72	73	74	75	76	77	78	79	80
b	b	b	a	a	a	b	a	a	a
81	82	83	84	85	86	87	88	89	90
a	b	d	a	b	a	a	a	a	c
91	92	93	94	95	96	97	98	99	100
a	c	a	a	a	a	a	a	b	c

## ST-25b : SINGLE LINE TOKEN LESS BLOCK INSTRUMENT

- 1) The Normal line working current of PTJ make push button type single line token less block instrument is\_\_\_\_\_ ( )  
a. 17 mA                      b. 25 mA                      c. 60 mA                      d. 110 mA
- 2) The Normal operating voltage (local supply) of PTJ make push button type single line token less block instrument is\_\_\_\_\_DC ( )  
a. 12v                      b. 24v                      c. 60v                      d. 110v
- 3) In PTJ make PB type block instt., the line supply will be\_\_\_\_\_ ( )  
a. 24v DC                      b. 30v DC                      c. 36v DC                      d. 24v DC + line drop
- 4) PTJ make Push Button type S/line tokenless block instt. is suitable in \_ area ( )  
a. only Non-RE                      b. only RE                      c. both RE & non-RE                      d. none
- 5) Push Button type S/line block instt. is\_\_\_\_\_type for normal train operations ( )  
a. non-cooperative                      b. co-operative                      c. both                      d. none
- 6) Push Button type S/line block instt. is\_\_\_\_\_type for cancellation operations ( )  
a. non-cooperative                      b. co-operative                      c. both                      d. none
- 7) Push Button type 'PTJ' make S/line tokenless block instt. POH is\_\_\_\_\_ ( )  
a. once in 7 years                      b. once in 10 years                      c. not required                      d. none
- 8) Single line push button PTJ block instrument working principle is\_\_\_\_\_ ( )  
a. AC impulse code                      b. DC impulse code  
c. AC & DC impulse codes                      d. Frequency modulated
- 9) TOL acknowledgement relay in IRS-PTJ block\_\_\_\_\_ ( )  
a. TOLTR                      b. TOLAR                      c. ASTR                      d. CTR
- 10) One line clear - one train is ensured in the S/L T/L PTJ block instrument by ( )  
a. ASCR                      b. CTR                      c. ASTR                      d. ASR
- 11) When BCB button is pressed\_\_\_\_\_polarity of line supply is extended on line-1 in PTJ block ( )  
a. + ve & - ve                      b. + ve                      c. - ve                      d. none
- 12) TCF code in PTJ make push button block instrument is\_\_\_\_\_ ( )  
a. -ve, +ve, + ve                      b. -ve, -ve, +ve  
c. -ve, -ve, -ve                      d. -ve , +ve, -ve
- 13) TGT code in PTJ make push button block instrument is\_\_\_\_\_ ( )  
a. -ve, +ve, + ve                      b. -ve, -ve, +ve  
c. -ve, -ve, -ve                      d. -ve , +ve, -ve
- 14) TOL code in PTJ make push button block instrument is\_\_\_\_\_ ( )  
a. -ve, +ve, + ve                      b. -ve, -ve, +ve  
c. -ve, -ve, -ve                      d. -ve , +ve, -ve





- 31) In P/Button type block inst., \_\_\_ will pick up at code reception end only ( )  
 a. TCKR                      b. CRR(N)/(R)              c. LR, LPR              d. none
- 32) In P/Button type block inst., \_\_\_ will pick up at code transmission end only ( )  
 a. NTR/PTR, CTR, CTPR                      b. N2R/P2R, RCKR, RDR  
 c. 1CR, 2CR, 3CR, LR, LPR                      d. none
- 33) In P/Button type block inst., \_\_\_ will pick up at code reception end only ( )  
 a. NTR/PTR, CTR, CTPR                      b. N2R/P2R, RDR, RCKR  
 c. 1CR, 2CR, 3CR, LR, LPR                      d. none
- 34) In P/Button type block inst., \_\_\_ will pick up at both ends of coding ( )  
 a. NTR/PTR, CTR, CTPR                      b. N2R/P2R, RDR, RCKR  
 c. 1CR, 2CR, 3CR, LR, LPR                      d. none
- 35) Once SM's key is taken out in push button block instrument \_\_\_ is not possible ( )  
 a. TOL code transmission                      b. TOL code reception  
 c. incoming bell beats                      d. out going bell beats
- 36) In P/Button type block inst., shunt key can be extracted only in \_\_\_ position ( )  
 a. TCF or TCF+TOL                      b. TGT or TGT+TOL  
 c. LINE CLOSED or TGT+TOL                      d. LINE COSED or TGT
- 37) Shunt key extraction circuit is in \_\_\_ circuit in push button block instrument ( )  
 a. line                      b. local                      c. external                      d. none
- 38) \_\_\_ Button is common for line closed or line clear operation in PB block inst. ( )  
 a. LCB                      b. TGB                      c. BCB                      d. CANCEL
- 39) TOL code transmission can be suppressed temporarily by train \_\_\_ end in PB block inst. ( )  
 a. sending                      b. receiving                      c. both                      d. none
- 40) Separate power supply is \_\_\_ for telephone circuit in PB block inst. ( )  
 a. not required                      b. required                      c. both                      d. none
- 41) In PB block inst., minimum line wires required \_\_\_ to connect both blocks ( )  
 a. 1                      b. 2                      c. 3                      d. none
- 42) For normal train operations \_\_\_ block inst. is fully non-cooperative type ( )  
 a. push button type                      b. handle type Daido                      c. a & b                      d. none
- 43) For cancellation operations \_\_\_ block inst. is fully co-operative type ( )  
 a. push button type                      b. handle type Daido                      c. a & b                      d. none
- 44) Separate shunt key is EKT provided externally for \_\_\_ block inst. ( )  
 a. push button type                      b. handle type Daido                      c. both                      d. none
- 45) Common cancellation control is provided in \_\_\_ block inst. ( )  
 a. push button type                      b. handle type Daido                      c. both                      d. none
- 46) In \_\_\_ block inst., separate power supply is not required for Telephone circuit. ( )  
 a. push button type                      b. handle type Daido                      c. both                      d. none

- 47) Separate cancellation controls are provided in\_\_\_block inst. ( )  
a. handle type Daido b. push button type c. both d. none
- 48) Shunt key is provided physically inbuilt on front side of\_\_\_block inst. ( )  
a. push button type b. handle type Daido c. both d. none
- 49) For normal & cancellation operations\_\_\_block inst. is fully co-operative type ( )  
a. handle type Daido b. push button type c. both d. none
- 50) Slip siding key can be extracted when Push Button block inst. is in\_\_\_position( )  
a. LINE CLOSED b. TCF c. TGT d. none
- 51) S/L Handle type Daido B/I carrier frequencies are\_\_\_\_\_ ( )  
a. 65 Hz & 85 Hz b. 1800 Hz & 2700 Hz  
c. 21 KHz & 23 KHz d. 5 KHz
- 52) Tx & Rx unit's carrier frequencies of Daido block at same station should be \_ ( )  
a. different b. same c. both d. none
- 53) Tx unit of one station & Rx unit of other end station carrier frequencies of Daido block instrument should be\_\_\_\_\_ ( )  
a. different b. same c. both d. none
- 54) S/L Handle type Daido B/I modulated frequencies are\_\_\_\_\_ ( )  
a. 65 Hz & 85 Hz b. 1800 Hz & 2700 Hz  
c. 21 KHz & 23 KHz d. 5 KHz
- 55) In S/L Handle type Daido B/I,\_\_\_\_modulated frequency is required for turning B/H from Line Closed to Train Going To position ( )  
a. 65 Hz b. 85 Hz c. 1800 Hz d. 2700 Hz
- 56) In S/L Handle type Daido B/I,\_\_\_\_modulated frequency is required for turning B/H from Line Closed to Train Coming From position ( )  
a. 65 Hz b. 85 Hz c. 1800 Hz d. 2700 Hz
- 57) In S/L Handle type Daido B/I,\_\_\_\_modulated frequency is required for turning B/H from Train Coming From to Line Closed position ( )  
a. 65 Hz b. 85 Hz c. 1800 Hz d. 2700 Hz
- 58) In S/L Handle type Daido B/I,\_\_\_\_modulated frequency is required for turning B/H from Train Going Towards to Line Closed position ( )  
a. 65 Hz b. 85 Hz c. 1800 Hz d. 2700 Hz
- 59) In S/L Handle type Daido B/I,\_\_\_\_\_modulated frequency is required for Auto TOL code transmission ( )  
a. 65 Hz b. 85 Hz c. 1800 Hz d. 2700 Hz
- 60) In S/L Handle type Daido B/I,\_\_\_relay ensures one Line Clear One Train ( )  
a. TELR b. TOLR c. TRSR d. PBPR

- 61) In S/L Handle type Daido B/I, \_\_\_\_\_ relay picks up at the same station when PB1 & PB2 are pressed simultaneously ( )  
 a. BLR                      b. NR                      c. PBPR                      d. none
- 62) In S/L Handle type Daido B/I, \_\_\_\_\_ relay picks up at the other end station when PB1 & PB2 are pressed simultaneously. ( )  
 a. BLR                      b. NR                      c. PBPR                      d. none
- 63) In S/L Handle type Daido B/I, \_\_\_\_\_ relay picks up at the OTHER station when PB1 is pressed for bell beat exchange ( )  
 a. BLR                      b. NR                      c. PBPR                      d. none
- 64) In S/L Handle type Daido B/I, \_\_\_\_\_ relay picks up at the other end station when PB1 is pressed for bell beat exchange ( )  
 a. BLR                      b. NR                      c. PBPR                      d. none
- 65) In S/L Handle type Daido B/I, \_\_\_\_\_ relay picks up at the same station when PB1 is pressed for TOL code acknowledgement ( )  
 a. BLR                      b. NR                      c. PBPR                      d. none
- 66) In S/L Handle type Daido B/I, \_\_\_\_\_ relay picks up at the other end station when PB1 is pressed for TOL code acknowledgement ( )  
 a. BLR                      b. NR                      c. PBPR                      d. none
- 67) In Daido B/I, The carrier frequencies of TX & RX units at one end should be. ( )  
 a) same                      b) different                      c) a & b                      d) none
- 68) In Daido Block Inst, \_\_\_\_\_ polarity extends on line when PB1 is pressed for TOL code acknowledgement ( )  
 a. + ve                      b. - ve                      c. both                      d. none
- 69) In Daido Block Inst, \_\_\_\_\_ polarity extends on line when PB1 is pressed for bell beat exchange signals ( )  
 a. + ve                      b. - ve                      c. both                      d. none
- 70) In Daido Block Inst, \_\_\_\_\_ polarity extends on line when PB1 & PB2 are pressed simultaneously. ( )  
 a. + ve                      b. - ve                      c. both                      d. none
- 71) In Daido Block Inst, TOL buzzer appears at train \_\_\_\_\_ end ( )  
 a. sending                      b. receiving                      c. both                      d. none
- 72) In Daido Block Inst, shunt key can be extracted in \_\_\_\_\_ position ( )  
 a. TCF or ( TCF + TOL)                      b. TGT or ( TGT + TOL )  
 c. LINE CLOSED or ( TCF + TOL )                      d. LINE COSED or TGT
- 73) The normal line working current in Daido block instrument is \_\_\_\_\_ ( )  
 a. 17 mA                      b. 25 mA                      c. 60 mA                      d. 110 mA
- 74) The Normal operating voltage (local supply) of handle type FM coded DAIDO single line token less block instrument is \_\_\_\_\_ DC ( )  
 a. 12v                      b. 24v                      c. 60v                      d. 110v

- 75) In Daido block instt., the line supply will be\_\_\_\_\_ ( )  
 a. 24v DC + line drop    b. 30v DC                      c. 36v DC                      d. 24v DC
- 76) S/line token less Daido block instt. is suitable in\_\_\_\_\_area ( )  
 a. both RE & non-RE    b. only non- RE                      c. only RE                      d. none
- 77) S/line token less Daido block instt. is\_\_\_\_\_type for normal train operations ( )  
 a. non- cooperative    b. cooperative                      c. both                      d. none
- 78) S/line token less Daido block instt. is\_\_\_\_\_for cancellation operations ( )  
 a. non-cooperative    b. cooperative                      c. both                      d. none
- 79) S/line token less Daido block instrument POH is\_\_\_\_\_ ( )  
 a. once in 10 years    b. once in 7 years    c. both                      d. none
- 80) S/line token less Daido block instrument working principle is\_\_\_\_\_ ( )  
 a. AC impulse code                      b. DC impulse code  
 c. AC & DC impulse codes                      d. Frequency modulated
- 81) S1 switch is used for\_\_\_\_\_cancellation operation in Daido block instrument ( )  
 a. normal                      b. push back                      c. both                      d. none
- 82) S2 switch is used for\_\_\_\_\_cancellation operation in Daido block instrument ( )  
 a. normal                      b. push back                      c. both                      d. none
- 83) In Daido block inst., time release indicator operates when\_\_\_\_\_operated ( )  
 a. S1 switch                      b. S2 switch                      c. both                      d. none
- 84) Separate power supply is\_\_\_\_\_for telephone circuit in Daido block inst. ( )  
 a. not required                      b. required                      c. both                      d. none
- 85) In Daido block inst.,\_\_\_\_\_is pressed for bell beat exchange signals ( )  
 a. PB1                      b. PB2                      c. both                      d. none
- 86) In Daido block inst.,\_\_\_\_\_is pressed for TOL code acknowledgement ( )  
 a. PB1                      b. PB2                      c. both                      d. none
- 87) In Daido block inst.,\_\_\_\_\_is pressed for extending co-operation ( )  
 a. PB1                      b. PB2                      c. both                      d. none
- 88) In Daido block inst.,\_\_\_\_\_relay picks up in a line circuit ( )  
 a. BLR                      b. NR                      c. a or b                      d. none
- 89) In Daido block inst.,\_\_\_\_\_relay picks up in local circuit ( )  
 a. 1R                      b. 1TPR                      c. both                      d. none
- 90) BLR & NR are of\_\_\_type relays provided in Daido block inst. ( )  
 a. QB3                      b. QNA1                      c. QL1                      d. QBA1
- 91) 1R & 1TPR are of\_\_\_type relays provided in Daido block inst. ( )  
 a. QB3                      b. QNA1                      c. QL1                      d. QBA1
- 92) In Daido block inst., TOL indicator is of\_\_\_type indicator ( )  
 a. magnetic latch                      b. polarized                      c. neutral                      d. none

- 93) In Daido block inst., time release indicator is of \_\_\_type indicator ( )  
 a. magnetic latch      b. polarized      c. neutral      d. none
- 94) In Daido block inst., galvo is of \_\_\_type indicator ( )  
 a. magnetic latch      b. polarized      c. neutral      d. none
- 95) In Daido block inst., total line circuits are \_\_\_ ( )  
 a. 2      b. 3      c. 4      d. none
- 96) In Daido block inst., total power supplies required are \_\_\_ ( )  
 a. 2      b. 3      c. 4      d. none
- 97) In Daido block inst., minimum line wires required to connect in non-RE is \_\_\_( )  
 a. 1      b. 2      c. 3      d. none
- 98) In Daido block inst., minimum \_\_\_of line wires required to connect in RE \_\_\_( )  
 a. 1 pair      b. 2 pairs      c. 3 pairs      d. none
- 99) When SM's key is removed in Daido block inst., \_\_\_possible ( )  
 a. for extending co-operation      b. incoming bell beats  
 c. for extraction of shunt key      d. S1 or S2 operation
- 100) When SM's key is removed in Daido block inst., \_\_\_possible ( )  
 a. auto TOL code transmission      b. auto TOL code reception  
 c. incoming bell beats      d. all

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
c	b	d	a	a	b	c	b	b	d
11	12	13	14	15	16	17	18	19	20
b	d	b	c	a	b	c	c	a	c
21	22	23	24	25	26	27	28	29	30
d	d	c	c	a	a	b	d	c	a
31	32	33	34	35	36	37	38	39	40
b	a	b	c	d	c	b	c	a	b
41	42	43	44	45	46	47	48	49	50
a	a	c	a	a	b	a	b	a	c
51	52	53	54	55	56	57	58	59	60
b	a	b	a	a	b	b	b	a	c
61	62	63	64	65	66	67	68	69	70
c	b	d	a	c	b	b	a	b	a
71	72	73	74	75	76	77	78	79	80
c	d	d	b	a	a	b	b	b	d
81	82	83	84	85	86	87	88	89	90
a	b	a	a	a	a	c	c	c	d
91	92	93	94	95	96	97	98	99	100
b	a	a	b	b	b	a	b	b	d

## ST-25c : DOUBLE LINE BLOCK INSTRUMENT

- 1) The resistance of a door lock coil in PTJ make SGE block instrument (     )   
 a. 140 ohms                      b. 50 ohms                      c. 400 ohms                      d. 48 ohms
- 2) The bell coil resistance in PTJ make SGE block instrument (     )   
 a. 140 ohms                      b. 50 ohms                      c. 400 ohms                      d. 48 ohms
- 3) The up/down line indicator coil resistance in PTJ make SGE block instrument (     )   
 a. 140 ohms                      b. 50 ohms                      c. 400 ohms                      d. 48 ohms
- 4) The bell line relay coil resistance in PTJ make SGE block instrument (     )   
 a. 140 ohms                      b. 50 ohms                      c. 400 ohms                      d. 48 ohms
- 5) In train arrival circuit in double line \_\_\_\_\_ are used (     )   
 a. Two track circuits'                      b. Axle counters   
 c. Last vehicle check device                      d. Treadle contact
- 6) One line clear one train movement in SGE D/L B/I is ensured by (     )   
 a. FVTR                      b. SR1, SR2                      c. ASR                      d. LCPR
- 7) Minimum number of line conductors required for D/L B/I in non-RE area are (     )   
 a. 1                      b. 2                      c. 3                      d. 4
- 8) No. of bands in commutator is \_\_\_\_\_ for SGE DLBI (     )   
 a. 2                      b. 4                      c. 6                      d. 8
- 9) 1<sup>st</sup> band of commutator is used in \_\_\_\_\_ circuit of SGE DLBI (     )   
 a. SR<sub>1</sub>, SR<sub>2</sub>                      b. LCPR                      c. GNSR                      d. LSS DR
- 10) In SGE DLBI, GNSR relay picks up when block handle is turned to \_\_\_\_\_ (     )   
 a. Line Closed                      b. TOL                      c. LC                      d. none
- 11) In SGE DLBI, GNSR relay drops when block handle is turned to \_\_\_\_\_ (     )   
 a. Line Closed                      b. TOL                      c. LC                      d. none
- 12) One line clear one train feature is achieved by \_\_\_\_\_ Relays in SGE DLBI (     )   
 a. SR<sub>1</sub>, SR<sub>2</sub>                      b. LCPR, GNSR                      c. LSS PR, DECR                      d. None
- 13) SR<sub>1</sub> and SR<sub>2</sub> relays are provided with \_\_\_\_\_ type of Relay in SGE DLBI (     )   
 a. QN1                      b. QBA1                      c. QNA1                      d. QBCA1
- 14) Normally SR<sub>1</sub> and SR<sub>2</sub> relays are in \_\_\_\_\_ condition of SGE DLBI (     )   
 a. dropped                      b. pick up                      c. both                      d. none
- 15) Initially SR<sub>1</sub> and SR<sub>2</sub> relays picks up with \_\_\_\_\_ PR relay in SGE DLBI (     )   
 a. line closed contact                      b. TOL contact                      c. LC contact                      d. none
- 16) Commutator is locked when Block handle is turned from \_\_\_\_\_ to \_\_\_\_\_ (     )   
 a. Line closed to TOL                      b. Line clear to Line closed   
 c. Line clear to TOL                      d. Line closed to Line clear

- 17) Periodicity of overhauling for SGE DLBI is \_\_\_\_\_ ( )  
 a. 7 Years                      b. 10Years                      c. 12 Years                      d. No Overhauling
- 18) In SGE DLBI, Top indicator refers as \_\_\_\_\_ ( )  
 a. TCF Indicator                      b. TGT Indicator  
 c. Line closed Indicator                      d. None
- 19) In SGE DLBI, Bottom indicator refers as \_\_\_\_\_ ( )  
 a. TCF Indicator                      b. TGT Indicator  
 c. Line closed Indicator                      d. None
- 20) In DLBI, line clear is given at \_\_\_\_\_ station ( )  
 a. Train sending station                      b. Train Receiving Station  
 c. At Both Stations                      d. None
- 21) In block clearance circuit of SGE DLBI, \_\_\_ relay normally in Pick Up condition ( )  
 a. ZR1                      b. ZR2                      c. ZR3                      d. none
- 22) In SGE DLBI, ZR3 relay drops when block handle is turned to \_\_\_\_\_ ( )  
 a. Line Closed                      b. TOL                      c. LC                      d. none
- 23) In SGE DLBI, ZR3 relay picks up on arrival of train when block handle is in \_\_\_ ( )  
 a. Line Closed                      b. TOL                      c. LC                      d. none
- 24) In DLBI, once ZR3 relay picks up, it remains in up condition with \_\_\_ band ( )  
 a. Line Closed                      b. TOL                      c. LC                      d. TOL/LB
- 25) ZR2 is to be provided with \_\_\_\_\_ feature ( )  
 a. Slow to Pick up                      b. Slow to Release  
 c. Both                      d. None
- 26) If pre-mature TOL is done in SGE DLBI, the LSS aspect \_\_\_\_\_ ( )  
 a. changes to RG                      b. remains same DG                      c. becomes blank                      d. none
- 27) In SGE DLBI, if train is arrived when block handle is in LC position, then \_\_\_\_\_ ( )  
 a. block inst. fails                      b. block inst will not fail                      c. both                      d. none
- 28) In SGE DLBI, if Home signal RG gets blank on arrival of train, then \_\_\_\_\_ ( )  
 a. block inst. fails                      b. block inst will not fail                      c. both                      d. none
- 29) The Block instrument earth value should be not more than \_\_\_\_\_ ( )  
 a. 1Ω                      b. 5Ω                      c. 10Ω                      d. 12Ω
- 30) Block earths are measured once in \_\_\_\_\_ ( )  
 a. 1 Year                      b. 2 Years                      c. 6 months                      d. 3 months
- 31) To open DLBI cover \_\_\_\_\_ is required to be given ( )  
 a. without consent memo                      b. with consent memo  
 c. disconnection memo                      d. none

- 32) SGE DLBI is provided with\_\_\_\_\_arrangement ( )  
 a. double locking      b. sealing      c. both      d. none
- 33) In SGE DLBI, top indicator is interconnected with \_\_\_ in the same block ( )  
 a. bottom indicator      b. polarized relay      c. block handle      d. none
- 34) In SGE DLBI, bottom indicator is interconnected with \_\_\_ in the same block ( )  
 a. top indicator      b. polarized relay      c. block handle      d. none
- 35) In SGE DLBI, bottom indicator is interconnected with\_\_\_\_\_of other block inst. ( )  
 a. top indicator      b. polarized relay      c. block handle      d. a&b
- 36) In SGE DLBI, the total numbers of line circuits are\_\_\_\_\_. ( )  
 a. 2      b. 3      c. 4      d. 5
- 37) In SGE DLBI, the total number of power supplies required at a station are\_\_\_\_( )  
 a. 2      b. 3      c. 4      d. 5
- 38) In SGE DLBI, a separate power supply is\_\_\_\_\_for telephone circuit ( )  
 a. not required      b. required      c. both      d. none
- 39) When SM's key is taken out in SGE DLBI,\_\_\_\_\_is not possible ( )  
 a. block handle operation      b. bell plunger operation      c. both      d. none
- 40) AC immunity value of PR is\_\_\_\_\_V AC ( )  
 a. 50V AC      b. 300V AC      c. 1000V AC      d. 10V AC
- 41) Resistance of Choke (S1) is\_\_\_\_\_ohms in Block unit ( )  
 a. 40000Ω      b. 20000Ω      c. 40Ω      d. 50Ω
- 42) Resistance of Choke (S2) is\_\_\_\_\_ohms in Block unit ( )  
 a. 40000Ω      b. 20000Ω      c. 40Ω      d. 50Ω
- 43) Impedance of Choke (S1) is\_\_\_\_\_ohms in Block unit ( )  
 a. 40000Ω      b. 20000Ω      c. 40Ω      d. 50Ω
- 44) Impedance of Choke (S2) is\_\_\_\_\_ohms in Block unit ( )  
 a. 40000Ω      b. 20000Ω      c. 40Ω      d. 50Ω
- 45) Filter unit is used for\_\_\_\_\_line circuits Block instrument ( )  
 a. bell      b. telephone      c. indication      d. None
- 46) Filter unit for Block instrument is provided to block\_\_\_\_\_voltage ( )  
 a. AC induced Voltage      b. DC Voltage  
 c. Both      d. None
- 47) DLBI in RE, bell line circuit is connected with\_\_\_\_\_to remove induced voltage ( )  
 a. Isolation transformer      b. Filter unit  
 c. Both      d. None



- 48) In DLBI, block handle locks initially at \_\_\_ position while turning towards TOL ( )  
 a. full notch                      b. half notch                      c. Line Closed                      d. TOL
- 49) In DLBI, \_\_\_ contacts makes when bell plunger is not pressed ( )  
 a. B, L                                      b. B, R                                      c. L, R                                      d. V, L
- 50) \_\_\_ pairs of line wires required for connecting both the DLBIs in RE area ( )  
 a. one                                      b. two                                      c. three                                      d. four

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
b	d	a	c	a	b	c	c	c	c
11	12	13	14	15	16	17	18	19	20
a	a	c	b	b	c	a	b	a	b
21	22	23	24	25	26	27	28	29	30
c	c	b	d	b	b	b	a	c	a
31	32	33	34	35	36	37	38	39	40
c	c	b	c	d	c	c	b	c	d
41	42	43	44	45	46	47	48	49	50
d	c	a	b	c	a	a	b	c	b

## ST-25d : UFSBI & SSBPAC

- 1) UFSBI works in\_\_\_\_\_media ( )  
a. Quad only                      b. OFC only                      c. both a & b                      d. none
- 2) UFSBI works in\_\_\_\_\_. ( )  
a. RE & Non RE                      b. Single line                      c. Double line                      d. All
- 3) Output 2 relay is\_\_\_\_\_in UFSBI. ( )  
a. TGTZR                      b. TCFXR                      c. TCFCR                      d. ASGN CPR
- 4) Output 3 relay is\_\_\_\_\_in UFSBI. ( )  
a. TGTZR                      b. TCFZR                      c. TCFCR                      d. ASGN CPR
- 5) Output 4 relay is\_\_\_\_\_in UFSBI ( )  
a. TGTZR                      b. TCFZR                      c. TCFCR                      d. TGTZR
- 6) Output 5 relay is\_\_\_\_\_in UFSBI. ( )  
a. BLR                      b. TCFZR                      c. TGTZR                      d. ASGN CPR
- 7) Output 6 relay is\_\_\_\_\_ in UFSBI. ( )  
a. TGTZR                      b. TCFZR                      c. TCFCR                      d. TGTZR
- 8) Output 7 relay is\_\_\_\_\_in UFSBI. ( )  
a. ASGN CPR                      b. BLR                      c. TGTZR                      d. TGTZR
- 9) UFSBI works with\_\_\_\_\_in UFSBI. ( )  
a. 1 out of 1 logic                      b. 2 out of 2 logic                      c. 2 out of 3 logic                      d. All
- 10) \_\_\_\_\_number of inputs that can be given to each input card in UFSBI ( )  
a. 08                      b. 16                      c. 24                      d. 36
- 11) Maximum no. of outputs that can be taken from each output card in UFSBI ( )  
a. 16                      b. 24                      c. 08                      d. 36
- 12) \_\_\_\_\_Number of Input cards are available in UFSBI ( )  
a. 6                      b. 2                      c. 4                      d. 8
- 13) One Line Clear One train feature in UFSBI is achieved by\_\_\_\_relay. ( )  
a. VPR                      b. BTR                      c. TGTZR                      d. ASCR
- 14) Number of Output cards in UFSBI ( )  
a. 4                      b. 1                      c. 2                      d. 3
- 15) Output voltages of DC DC converter in UFSBI ( )  
a. +5V, +12V, -12V, +24V                      b. +5V, +18V, +12V, +24V  
c. +5V, +12V, -12V, +18V                      d. +5V, +12V, Isol. 15V, +24V
- 16) \_\_\_\_\_relays are latched relays in UFSBI ( )  
a. TGTZR, TGTXR                      b. TCFR, TGTR  
c. TCFXR, TCFZR                      d. TGTZR, TGTPR

- 17) \_\_\_\_\_ number of quads are required for working of UFSBI in Single Line along with BPAC ( )  
 a. ½ quad                      b. 2+½ quad                      c. 1+½ quad                      d. 2 quad
- 18) SNK indication appears when \_\_\_ relays are in picked up condition in UFSBI ( )  
 a. ASGN CPR    b. ASGNCR & HSGNCR  
 c. ASGNCR    d. HSGNCR
- 19) In UFSBI Cancellation procedure; counter is incremented at \_\_\_. ( )  
 a. Sending station    b. TGT station  
 c. TCF station    d. both stations
- 20) \_\_\_\_\_ number of quads are required for working of UFSBI in Double line along with Up & Down BPAC ( )  
 a. ½ quad                      b. 2+½ quad                      c. 1+½ quad                      d. 2 quad
- 21) The read back contacts of BIPR 1 & BIPR 2 in UFSBI connected to \_\_\_ card. ( )  
 a. input                      b. Output                      c. CPU                      d. CCC
- 22) The read back contacts of output relays are connected to \_\_\_\_\_ card in UFSBI. ( )  
 a. input                      b. Output                      c. CPU                      d. CCC
- 23) Opto isolators are provided in \_\_\_\_\_ card of UFSBI. ( )  
 a. input                      b. Output                      c. CPU                      d. CCC
- 24) Input de bouncing circuit is provided in \_\_\_\_\_ card of UFSBI. ( )  
 a. input                      b. Output                      c. CPU                      d. CCC
- 25) CRC code is added in \_\_\_\_\_ card of UFSBI. ( )  
 a. input                      b. Output                      c. CPU                      d. CCC
- 26) 2 out of 3 logic hardware is provided in \_\_\_\_\_ card of UFSBI. ( )  
 a. input                      b. Output                      c. CPU                      d. CCC
- 27) The baud rate of the modem which is provided in UFSBI is \_\_\_\_\_ bps. ( )  
 a. 300                      b. 1200                      c. 2400                      d. 4800
- 28) In UFSBI mother board; in 9 pin data connector \_\_\_\_\_ pins are wired. ( )  
 a. 3, 4 & 8                      b. 1, 2 & 8                      c. 2, 3 & 4                      d. 3, 4 & 5
- 29) UFSBI address setting is done in \_\_\_\_\_. ( )  
 a. CPU card                      b. CCC card                      c. Output card                      d. Mother Board
- 30) Modem card converts the data from RS 232 to \_\_\_\_\_ frequency in UFSBI. ( )  
 a. Audio                      b. Radio                      c. Voice                      d. Ultra high
- 31) The modem used in UFSBI is \_\_\_\_\_ wire. ( )  
 a. 2                      b. 3                      c. 4                      d. 5
- 32) How many Q series relays are provided inside UFSBI in single line working. ( )  
 a. 29                      b. 30                      c. 31                      d. 32

- 33) How many Q series relays are provided inside UFSBI in double line working. ( )  
 a. 29                      b. 30                      c. 31                      d. 32
- 34) How many QNA1 relays are provided inside UFSBI in single line working? ( )  
 a. 4                          b. 5                          c. 6                          d. 7
- 35) How many QNA1 relays are provided inside UFSBI in double line working? ( )  
 a. 4                          b. 5                          c. 6                          d. 7
- 36) BIPR 1 and BIPR 2 are called as \_\_\_\_\_relays in UFSBI. ( )  
 a. Input                      b. Output                      c. Read back                      d. Health checking
- 37) Output relays are of \_\_\_\_\_type in UFSBI. ( )  
 a. QN1                      b. QNA1                      c. QNN1                      d. QL1
- 38) \_\_\_\_\_ohms of isolation transformer has to be connected to UFSBI side. ( )  
 a. 1120                      b. 470                      c. 600                      d. 1200
- 39) \_\_\_ohms of isolation transformer has to be connected to cable side in UFSBI. ( )  
 a. 1120                      b. 470                      c. 600                      d. 1200
- 40) Error code 10, 20 comes under \_\_\_\_\_in UFSBI. ( )  
 a. Input complementary failure                      b. Output complementary failure  
 c. BIPR 1 complementary failure                      d. Output forced pickup
- 41) Error code 18, 28 comes under \_\_\_\_\_in UFSBI. ( )  
 a. Input complementary failure                      b. Output complementary failure  
 c. BIPR 1 complementary failure                      d. Output forced pickup
- 42) Error code 30, 31 comes under \_\_\_\_\_in UFSBI. ( )  
 a. Input complementary failure                      b. Output complementary failure  
 c. BIPR 1 complementary failure                      d. Output forced pickup
- 43) Error code 33 is \_\_\_\_\_in UFSBI. ( )  
 a. link fail                      b. RSSB mode                      c. IN Jitter                      d. Out Jitter
- 44) Error code 37-39 are \_\_\_\_\_in UFSBI. ( )  
 a. link fail                      b. RSSB mode                      c. CPU bad                      d. UFSBI address bad
- 45) Error code 92 is \_\_\_\_\_in UFSBI. ( )  
 a. link fail                      b. RSSB mode                      c. CPU bad                      d. UFSBI address bad
- 46) Error code 34 is \_\_\_\_\_in UFSBI. ( )  
 a. link fail                      b. RSSB mode                      c. CPU bad                      d. UFSBI address bad
- 47) How many 24 volts DC supplies are available in UFSBI? ( )  
 a. 1                          b. 2                          c. 3                          d. 4
- 48) When error code 37 is displayed on CPU card, then \_\_\_\_\_indication appears on alarm panel of UFSBI. ( )  
 a. Single CPU fail                      b. redundant DC-DC fail  
 c. System fail                      d. Link fail

- 49) When error code 15 is displayed on CPU card, then\_\_\_\_\_ indication appears on alarm panel of UFSBI. ( )  
 a. Single CPU fail      b. DC-DC fail      c. System fail      d. Link fail
- 50) When any one 5V supply is faulty, then\_\_\_\_\_ indication appears on alarm panel of UFSBI. ( )  
 a. Single CPU fail      b. DC-DC fail      c. System fail      d. Link fail
- 51) SSBPAC of Medha works on\_\_\_\_\_ logic. ( )  
 a. 1 out of 1      b. 1 out of 2      c. 2 out of 2      d. 2 out of 3
- 52) SSBPAC of Medha will have\_\_\_\_\_No of cards. ( )  
 a. 10      b. 11      c. 12      d. 13
- 53) SSBPAC of Medha will have\_\_\_\_\_no of Power supply card. ( )  
 a. 1      b. 2      c. 3      d. 4
- 54) 2 out of 3 decisions will be taken by\_\_\_\_\_card in Medha SSBPAC. ( )  
 a. vital input      b. Vital output      c. CPU      d. Voter module
- 55) \_\_\_\_\_are the Health checking relays in Medha SSBPAC. ( )  
 a. BI PR-1 & BIPR-2      b. HCR -1 & HCR-2  
 c. VCOR-1 & VCOR-2      d. VR1 & VR2
- 56) \_\_\_\_\_are the latch relays in Medha SSBPAC. ( )  
 a. TGTR & TCFR      b. ASCR      c. HS GNCR      d. VCOR1 / VCOR2
- 57) For health checking\_\_\_\_\_type of relay is used in Medha SSBPAC. ( )  
 a. QL1      b. QN1      c. QNA1      d. QNN1
- 58) The input contacts are isolated from the CPU data line by using\_\_\_\_\_in Medha SSBPAC. ( )  
 a. opto-isolators      b. Transformers      c. Galvanic isolators      d. None
- 59) The vital output card receives vital output from\_\_\_card in Medha SSBPAC ( )  
 a. CPU card      b. Modem card      c. Voter module      d. Non vital output card.
- 60) The voter module gives the majority voted output for\_\_\_\_in medha SSBPAC. ( )  
 a. Vital output card      b. Non vital output card      c. both      d. none.
- 61) The functionality of the modem card is to take the data from\_\_\_\_\_card ( )  
 a. CPU      b. Voters module      c. vital output      d. Non vital output
- 62) The Event logger card is interfaced to all the CPU's through\_\_\_\_\_in Medha SSBPAC. ( )  
 a. CAN Bus      b. Serial Communication  
 c. parallel communication      d. both B & C.
- 63) For Medha SSBPAC\_\_\_\_\_provides the necessary interface between all the cards in the system. ( )  
 a. Back Plane      b. Keying Plugs  
 c. Mother board      d. Connector Assembly.



- 80) Feedback inputs are connected to \_\_\_\_\_ cards in Medha SSBPAC. ( )  
 a. CPU                      b. vital input              c. vital output              d. Non vital Output
- 81) Two vital cut off relays are incorporated in the system to increase the system \_\_\_\_\_ in Medha SSBPAC. ( )  
 a. Redundancy              b. Safety                      c. Availability              d. Functionality.
- 82) The communication from modem in the local system to the modem in the remote system is established through \_\_\_\_\_ interface in Medha SSBPAC. ( )  
 a. 2 wire                      b. 4 wire                      c. Fsk                          d. none.
- 83) For OFC communication \_\_\_\_\_ interface is provided in Medha SSBPAC. ( )  
 a. RS232                      b. RS485                      c. RS 422                      d. RS 222
- 84) LCD screen is used to display \_\_\_\_\_ in Medha SSBPAC. ( )  
 a. Fault codes              b. Software versions              c. Checksum              d. All
- 85) The Power supply card provides an output of \_\_\_\_\_ in Medha SSBPAC. ( )  
 a. 4.5V                          b. 6.2 V                          c. Both a & b                      d. 5.8 V
- 86) 6.2 V is used for \_\_\_\_\_ card in Medha SSBPAC. ( )  
 a. Processor                      b. Voter module              c. Event logger              d. output.
- 87) The range of input supply that can be given to Medha SSBPAC is \_\_\_\_\_. ( )  
 a. 19.2-31.2 V              b. 19.2 - 28.8 V              c. 21.6 - 28.8 V              d. 21.6 - 31.2 V
- 88) The modem voltage is \_\_\_\_\_ for Medha SSBPAC. ( )  
 a. > 350 mV                      b. < 350mV                      c. > 135 mV                      d. < 135 mV
- 89) Each CPU module contains \_\_\_\_ Kb of program memory in Medha SSBPAC. ( )  
 a. 64                              b. 128                              c. 256                              d. 512
- 90) Each CPU module contains \_\_\_\_\_ serial ports for inter processor communication in Medha SSBPAC. ( )  
 a. One                              b. two                              c. three                              d. Four
- 91) Each CPU module contains \_\_\_\_\_ serial ports for inter block communication in Medha SSBPAC. ( )  
 a. One                              b. two                              c. three                              d. Four
- 92) Efftronics SSBPAC consists of \_\_\_\_\_ number of cards ( )  
 a. 10                              b. 11                              c. 12                              d. 13
- 93) Each input module will have \_\_\_\_\_ number of opto- isolated digital inputs in Efftronics SSBPAC. ( )  
 a. 8                                  b. 16                                  c. 32                                  d. 60
- 94) Inputs are diverted to different routes by \_\_\_\_\_ card in Efftronics SSBPAC. ( )  
 a. Input                              b. Modem                              c. Scrambler                      d. CPU
- 95) GPS time synchronization is provided in \_\_\_\_\_ card of Efftronics SSBPAC ( )  
 a. Input                              b. Modem                              c. Scrambler                      d. CPU

- 96) Media changeover logic is provided in \_\_\_\_\_ card of Efftronics SSBPAC ( )  
 a. Communication    b. CPU    c. Voter module    d. Scrambler
- 97) \_\_\_\_\_ no of outputs can be connected to non vital output card of Efftronics SSBPAC ( )  
 a. 8    b. 16    c.24    d.32
- 98) CPS signal toggling is done for every \_\_\_\_\_ minutes in Efftronics SSBPAC ( )  
 a. 20    b. 30    c. 34    d. 38
- 99) \_\_\_\_\_ number of outputs can be connected to vital output card in Efftronics SSBPAC ( )  
 a. 8    b. 12    c. 16    d. 24
- 100) The maintainer terminal connected to SSBPAC Efftronics can store \_\_\_\_\_ no of latest error codes. ( )  
 a.10    b.50    c.100    d.200

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
c	d	b	c	d	d	a	b	c	a
11	12	13	14	15	16	17	18	19	20
c	a	b	c	a	b	d	b	c	b
21	22	23	24	25	26	27	28	29	30
a	a	a	c	c	b	c	a	d	c
31	32	33	34	35	36	37	38	39	40
c	c	a	c	d	d	a	c	b	a
41	42	43	44	45	46	47	48	49	50
b	c	a	c	d	b	c	a	c	b
51	52	53	54	55	56	57	58	59	60
d	d	b	d	c	a	d	a	c	c
61	62	63	64	65	66	67	68	69	70
<u>b</u>	b	a	d	a	a	d	c	c	a
71	72	73	74	75	76	77	78	79	80
c	b	a	b	c	d	c	a	b	b
81	82	83	84	85	86	87	88	89	90
<u>c</u>	<u>a</u>	<u>a</u>	<u>d</u>	<u>c</u>	<u>c</u>	<u>a</u>	<u>c</u>	<u>d</u>	<u>b</u>
91	92	93	94	95	96	97	98	99	100
a	b	d	c	d	a	c	c	a	c



ST-26 : SIGNALING IN R.E. AREA

- 1) The minimum Signal clearance should be \_\_\_\_\_ mm in RE area. ( )  
a. 2000                      b. 200                      c. 20                      d. none
- 2) In RE area normally no part of the signal should lie in \_\_\_\_\_ clearance zone ( )  
a. signal                      b. electrical                      c. both                      d. none
- 3) In RE area if any part of the signal lies in signal clearance zone but not in electrical clearance zone, then the signal post is provided with \_\_\_\_\_ towards OHE mast ( )  
a. iron screening mesh                      b. proper earthing for mesh  
c. both a & b                      d. none
- 4) The nearest part of the signal post from the CLOT shall be \_\_\_\_\_ ( )  
a. 3.5 m                      b. 2.844 m                      c. 2.5 m                      d. none
- 5) The normal implantation of OHE mast from the CLOT shall be \_\_\_\_\_ ( )  
a. 3.5 m                      b. 2.844 m                      c. 2.5 m                      d. none
- 6) In RE, the distance between signal and mast in front of it, must not be \_\_\_\_\_ ( )  
a. less than 3m                      b. less than 10m                      c. less than 30m                      d. none
- 7) In RE, the distance between signal and mast behind it must be not \_\_\_\_\_ less than if mast is anchored ( )  
a. less than 3m                      b. less than 10m                      c. less than 30m                      d. none
- 8) In RE, the distance between signal and mast behind it must be not \_\_\_\_\_ less than if mast is not anchored ( )  
a. less than 3m                      b. less than 10m                      c. less than 30m                      d. none
- 9) Catenary current carrying capacity on double line section in RE area is \_\_\_\_\_ ( )  
a. 500A                      b. 600A                      c. 800A                      d. 1000A
- 10) Catenary current carrying capacity on single line section in RE area is \_\_\_\_\_ ( )  
a. 500A                      b. 600A                      c. 800A                      d. 1000 A
- 11) \_\_\_\_\_ induction effect can be eliminated in RE area ( )  
a. electro-magnetic                      b. electro-static                      c. both                      d. none
- 12) \_\_\_\_\_ induction effect can not be eliminated but can be reduced in RE area ( )  
a. electro-magnetic                      b. electro-static                      c. both                      d. none
- 13) The maximum length of parallelism is permitted for DC circuits on D/L sections in RE area is \_\_\_\_\_ ( )  
a. 1 Km                      b. 1.2 Km                      c. 2.8 Km                      d. 2.1 Km
- 14) The maximum length of parallelism is permitted for DC circuits on S/L sections in RE area is \_\_\_\_\_ ( )  
a. 1 Km                      b. 1.2 Km                      c. 2.8 Km                      d. 2.1 Km

- 15) Direct feeding range of signals on D/L in new design is \_\_\_\_\_ ( )  
 a. 180 m                      b. 120 m                      c. 600 m                      d. 220 m
- 16) Direct feeding range of signals on S/L in new design is \_\_\_\_\_ ( )  
 a. 180 m                      b. 120 m                      c. 600 m                      d. 220 m
- 17) Stray current shall not exceed \_\_\_\_\_ mA for track circuits longer than 100m ( )  
 a. 1 mA                      b. 10 mA                      c. 100 mA                      d. 1000 mA
- 18) Stray current shall not exceed \_\_\_\_\_ mA for track circuit lengths up to 100m ( )  
 a. 1 mA                      b. 10 mA                      c. 100 mA                      d. 1000 mA
- 19) Stray voltage shall not exceed \_\_\_\_\_ mV in a track circuit ( )  
 a. 1 mV                      b. 10 mV                      c. 100 mV                      d. 1000 mV
- 20) Electrical Point Machine non-trailable type (IRS.24 & Siemen's IA), the A.C. immunity level shall not be less than \_\_\_\_\_ at 50 Hz. ( )  
 a. 300V                      b. 160V                      c. 100V                      d. none
- 21) The maximum permissible distance between the machine and contactor unit should be \_\_\_\_\_ on double line sections. ( )  
 a. 2.4 Km                      b. 1.6 Km                      c. 1.1 Km                      d. 0.91 Km
- 22) The maximum permissible distance between the machine and contactor unit should be \_\_\_\_\_ on single line sections. ( )  
 a. 2.4 Km                      b. 1.6 Km                      c. 1.1 Km                      d. 0.91 Km
- 23) The maximum length of parallelism of a power cable is up to \_\_\_\_\_ ( )  
 a. 2.4 Km                      b. 1.6 Km                      c. 1.1 Km                      d. 0.91 Km
- 24) The other name of isolation transformer is called as \_\_\_\_\_ ( )  
 a. 1:1 transformer                      b. Phantom transformer  
 c. both a & b                      d. none
- 25) The purpose of isolation transformer in RE area is \_\_\_\_\_ ( )  
 a. to block induced voltages                      b. to block line circuit voltages  
 c. to allow induced voltages                      d. to isolate induced voltages
- 26) In RE, isolation transformer \_\_\_\_\_ ohms coil is connected towards line side ( )  
 a. 1120                      b. 470                      c. 360                      d. 120
- 27) In RE, isolation transformer \_\_\_\_\_ ohms coil is connected towards block side ( )  
 a. 1120                      b. 470                      c. 360                      d. 120
- 28) In RE, isolation transformer \_\_\_\_\_ ohms coil is with centre tapping ( )  
 a. 1120                      b. 470                      c. 360                      d. 120
- 29) \_\_\_\_\_ block instrument is not suitable in RE area ( )  
 a. double line                      b. push button                      c. daido                      d. token

- 30) Block bell equipment is connected in RE area for the\_\_\_\_\_block instrument ( )  
 a. double line                    b. push button                    c. daido                    d. none
- 31) Block bell equipment has \_\_\_\_\_circuit with 'SO' relay of miniature type ( )  
 a. oscillator                    b. rectifier                    c. both a & b                    d. none
- 32) \_\_\_frequency sends on line by block bell equipment in double line block in RE ( )  
 a. 50 Hz                    b. 150 Hz                    c. 250 Hz                    d. 350 Hz
- 33) The choke coil resistance & impedance value in RE area TC is\_\_\_\_\_ ( )  
 a. 3  $\Omega$  & 160  $\Omega$                     b. 4  $\Omega$  & 160  $\Omega$                     c. 3  $\Omega$  & 120  $\Omega$                     d. 4  $\Omega$  & 120  $\Omega$
- 34) The choke in a TC is connected to\_\_\_\_\_rail side ( )  
 a. + ve always                    b. – ve always                    c. + ve or – ve                    d. none
- 35) The purpose of Choke in the TC of RE area is\_\_\_\_\_ ( )  
 a. to block induced voltages                    b. to block TC circuit voltages  
 c. to allow induced voltages                    d. to earth induced voltages
- 36) The first TPR should be of\_\_\_\_\_type relay only to be used in RE ( )  
 a. QSRA1                    b. QSPA1                    c. QBCA1                    d. QTA1
- 37) The normal height of contact wire for regulated OHE above rail level is\_ (BG)( )  
 a. 5.75 m                    b.5.55 m                    c. 4.65 m                    d. None
- 38) The max. height of contact wire for un-regulated OHE above rail level is\_(BG)( )  
 a. 5.75 m                    b.5.55 m                    c. 4.65 m                    d. None
- 39) The min. height of contact wire for un-regulated OHE above rail level is\_(BG)( )  
 a. 5.75 m                    b.5.55 m                    c. 4.65 m                    d. None
- 40) Near traction sub-station, underground cable must be laid in\_\_\_\_\_ ( )  
 a. concrete pipe                    b. GI pipe                    c. DWC pipe                    d. All
- 41) Earth resistance shall not exceed\_\_\_\_\_for checking stray voltage & current ( )  
 a. 1  $\Omega$                     b. 5  $\Omega$                     c. 10  $\Omega$                     d. none
- 42) The safest handling voltage in RE area as per new design is\_\_\_\_\_ ( )  
 a. 120V                    b. 240V                    c. 300V                    d. 400V
- 43) Filter unit is connected in between block instrument and\_\_\_\_\_ ( )  
 a. isolation transformer                    b. line side of isolation transformer  
 c. block inst. side of isolation transformer                    d. none
- 44) Filter unit accommodates block inst. line circuits with\_\_\_\_\_ ( )  
 a. 1 no. of DC supply                    b. 1 no. of DC single polarities  
 c. 2 nos. of DC supply                    d. 2 nos. of DC single polarities
- 45) Block inst. line circuits of\_\_\_\_\_circuits are connected to Filter unit ( )  
 a. AC or DC                    b. DC & AC                    c. AC                    d. DC

- 46) The purpose of Condenser in a Filter unit\_\_\_\_\_ ( )  
 a. to block AC & to allow DC supply      b. to block DC & AC supply.  
 c. to block DC & to allow AC supply      d. to allow DC & AC supply
- 47) The Condenser in a Filter unit will have\_\_\_\_\_number of terminals ( )  
 a. 2    b. 3    c. 4    d. none
- 48) In RE, the filter unit is provided with\_\_\_\_\_filtering facility ( )  
 a. one stage                                      b. two stage                                      c. three stage                                      d. none
- 49) The purpose of Choke in the filter unit of RE area is\_\_\_\_\_ ( )  
 a. to block induced voltages                      b. to block line circuit voltages  
 c. to allow induced voltages                      d. to earth induced voltages
- 50) For 25 KV A.C. lateral clearance between any live part of OHE and part of any fixed structure to a moving dimension is\_\_\_\_\_ ( )  
 a. 400 mm                                      b. 320 mm                                      c. 270 mm                                      d. 220 mm
- 51) For 25 KV A.C. lateral clearance between any live part of OHE and part of any fixed structure to a stationary dimension is\_ ( )  
 a. 400 mm                                      b. 320 mm                                      c. 270 mm                                      d. 220 mm
- 52) For 25 KV A.C vertical clearance between any live part of OHE and part of any fixed structure to a moving dimension is\_\_\_\_\_ ( )  
 a. 400 mm                                      b. 320 mm                                      c. 270 mm                                      d. 220 mm
- 53) For 25 KV A.C. vertical clearance between any live part of OHE and part of any fixed structure to a stationary dimension is\_ ( )  
 a. 400 mm                                      b. 320 mm                                      c. 270 mm                                      d. 220 mm
- 54) Longitudinal RE bond is provided for negative rails of\_\_\_\_\_ ( )  
 a. within the same TC                                      b. adjacent TCs in same line  
 c. TC to RE mast                                      d. parallel TCs
- 55) Transverse RE bond is provided for negative rails of\_\_\_\_\_ ( )  
 a. within the same TC                                      b. adjacent TCs in same line  
 c. TC to RE mast                                      d. parallel TCs
- 56) Structural RE bond is provided for negative rails of \_\_\_\_\_ ( )  
 a. within the same TC                                      b. adjacent TCs in same line  
 c TC to RE mast                                      d. parallel TCs
- 57) Inter track RE cross bond is provided for negative rails of \_\_\_\_\_ ( )  
 a. within the same TC                                      b. adjacent TCs in same line  
 c. TC to RE mast                                      d. parallel TCs
- 58) The distance between any OHE mast and point rod shall not be less than \_ ( )  
 a. 40 mm                                      b. 50 mm                                      c. 10 mm                                      d. None

- 59) A wire insulator to be provided at every\_\_\_\_\_of wire length transmission ( )  
 a. 40 m                      b. 500 m                      c. 100 m                      d. 300 m
- 60) Factor of safety in new design is \_\_\_\_ ( )  
 a. 1.5                      b. 1.2                      c. 2.5                      d. 3.5

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
a	c	c	b	c	c	b	a	d	c
11	12	13	14	15	16	17	18	19	20
b	a	c	d	d	a	c	b	c	b
21	22	23	24	25	26	27	28	29	30
c	d	a	c	d	b	a	b	b	a
31	32	33	34	35	36	37	38	39	40
b	b	c	b	a	b	b	a	c	a
41	42	43	44	45	46	47	48	49	50
b	d	b	d	d	c	c	c	a	d
51	52	53	54	55	56	57	58	59	60
b	c	b	a	b	c	d	a	d	a





- 28) Automatic stop signal working either as fully automatic signal or manual signal is provided with \_\_\_\_\_ marker ( )  
 a) Illuminated "A"      b) Illuminated "M"      c) Illuminated "A" & "M"      d) none
- 29) Each automatic block signaling section is divided as \_\_\_\_\_ track ( )  
 a) Overlap only      b) berthing only      c) overlap and berthing      d) none
- 30) \_\_\_\_\_ is compulsory in automatic signaling ( )  
 a) cascading      b) red lamp protection  
 c) 3 or 4 aspect signal      d) all
- 31) No. of Controlling relays required for 3 aspect automatic signal are ( )  
 a) 2      b) 3      c) 4      d) none
- 32) No. of Controlling relays required for 4 aspect automatic signal are ( )  
 a) 2      b) 3      c) 4      d) none
- 33) Controlling relays required for 3 aspect automatic signal are ( )  
 a) HR      b) HHR      c) DR      d) a and c
- 34) Controlling relays required for 4 aspect automatic signal are ( )  
 a) HR      b) HHR      c) DR      d) all
- 35) Condition of controlling relays when 3 aspect automatic stop signal is displaying caution aspect ( )  
 a) HR ↑ DR ↑      b) HR ↑ DR ↓      c) HR ↓ DR ↓      d) none
- 36) Condition of controlling relays when 3 aspect automatic stop signal is displaying proceed aspect ( )  
 a) HR ↑ DR ↑      b) HR ↑ DR ↓      c) HR ↓ DR ↓      d) none
- 37) Condition of controlling relays when 4 aspect automatic stop signal is displaying caution aspect ( )  
 a) HR ↑ HHR ↓ DR ↓      b) HR ↑ HHR ↑ DR ↓  
 c) HR ↑ HHR ↑ DR ↑      d) HR ↓ HHR ↑ DR ↓
- 38) Condition of controlling relays when 4 aspect automatic stop signal is displaying attention aspect ( )  
 a) HR ↑ HHR ↓ DR ↓      b) HR ↑ HHR ↑ DR ↓  
 c) HR ↑ HHR ↑ DR ↑      d) HR ↓ HHR ↑ DR ↓
- 39) Condition of controlling relays when 4 aspect automatic stop signal is displaying proceed aspect ( )  
 a) HR ↑ HHR ↓ DR ↓      b) HR ↑ HHR ↑ DR ↓  
 c) HR ↑ HHR ↑ DR ↑      d) HR ↓ HHR ↑ DR ↓





- 56) To acknowledge K1 buzzer \_\_\_\_\_ relay has to pick up. ( )  
 a) XR                      b) CRR                      c) CPBR                      d) PBPR
- 57) ACZR picks up through \_\_\_\_\_ relay front contact and maintains through stick path ( )  
 a) PBPR                      b) CRR                      c) ACZNR                      d) ACZR
- 58) \_\_\_\_\_ Relay picks up when K4 buzzer is acknowledged. ( )  
 a) XR                      b) CRR                      c) CPBR                      d) PBPR
- 59) \_\_\_\_\_ Button is to be pressed at dispatch end for axle counter resetting. ( )  
 a) PB4                      b) PB3                      c) PB2                      d) PB1
- 60) \_\_\_\_\_ Button is to be pressed at dispatch end for resetting IB section. ( )  
 a) PB4                      b) PB3                      c) PB2                      d) PB1
- 61) \_\_\_\_\_ Indication appears when IB power fails. ( )  
 a) K1                      b) K2                      c) K3                      d) K4
- 62) For reducing the induced voltages in cables \_\_\_\_\_ is provided for IB operation ( )  
 a) RE cut                      b) remote feed                      c) Double cutting                      d) filter unit
- 63) \_\_\_\_\_ Relay picks up when PB3 is pressed. ( )  
 a) XR                      b) ACZR                      c) CPBR                      d) PBPR
- 64) Driver of a train has to communicate with \_\_\_\_\_ station on IB phone. ( )  
 a) Rear                      b) advance                      c) both                      d) none
- 65) When train passes IBS at ON, \_\_\_\_\_ relay drops. ( )  
 a) PBPR                      b) CRR                      c) ACZNR                      d) ACZR
- 66) IB Home signal is provided with \_\_\_\_\_ marker. ( )  
 a) I                      b) B                      c) P                      d) IB
- 67) K4 indication appears when ( )  
 a) IB signal passed at ON                      b) IB signal passed at OFF  
 c) LSS passed at ON                      d) IB signal at blank
- 68) When IB signal is danger and telephone on IB post is not working, the Driver has to wait for \_\_\_\_\_ minutes. ( )  
 a) 15                      b) 10                      c) 5                      d) 0
- 69) LSS is controlled by \_\_\_\_\_ in IBS ( )  
 a) Block instrument                      b) Axle counter  
 c) IB signal                      d) None of the above
- 70) IB signal is controlled by the \_\_\_\_\_ in IBS ( )  
 a) Block instrument                      b) Axle counter  
 c) IB signal                      d) None of the above
- 71) To reset the axle counter in IBS block section, the sending end ASM presses \_\_\_\_\_ push button ( )  
 a) PB1                      b) PB2                      c) PB3                      d) none

- 72) The cable extended for power supply to IB location is ( )  
 a) 24x1.5 sqmm copper cable                      b) 2x25 sqmm aluminum cable  
 c) 30x1.5 sqmm copper cable                      d) 2x2.5 sqmm copper cable
- 73) IB signal is substitute of \_\_\_\_\_ station ( )  
 a) class A                      b) class B                      c) class C                      d) special class
- 74) IB signal splits block section into \_\_\_\_\_ ( )  
 a) Single section                      b) 2 sections                      c) Multiple sections                      d) none
- 75) Section capacity increases with \_\_\_\_\_ signal ( )  
 a) Home                      b) routing home                      c) IB                      d) all
- 76) The IB signalling is provided to avoid the expenditur on \_\_\_\_\_ ( )  
 a) additional Block Instruments                      b) Station Building  
 c) Operating Staff                      d) all
- 77) 'Rear Section' and 'Advance Section' are related with \_\_\_\_\_ ( )  
 a) IB Signalling                      b) Automatic Signalling                      c) Outlay siding                      d) All
- 78) Maximum \_\_\_\_\_ can be dealt on IB signalling ( )  
 a) Single train                      b) 2 trains                      c) 3 trains                      d) any number of trains
- 79) Rear section means the section between \_\_\_\_\_ ( )  
 a) LSS and IBS including IB overlap                      b) IB Signal and station home  
 c) LSS and station home                      d) can be anything
- 80) Advance section means the section between \_\_\_\_\_ ( )  
 a) IBS and FSS of station in rear                      b) IBS and FSS of station in advance  
 c) IBS and distant signal                      d) IBS and LSS of station in advance
- 81) IB signal is placed at the point where the section is divided into \_\_\_\_\_ ( )  
 a) Single portion                      b) 2 portions                      c) 3 portions                      d) none
- 82) Incorrect statement related to IB signal \_\_\_\_\_ ( )  
 a) Provided on D/L                      b) section capacity increases  
 c) can be provided in neutral section                      d) none
- 83) The IB Signal shall be so located that the running time of \_\_\_\_\_ ( )  
 a) Rear Section will be equal to Advance Section  
 b) Rear Section will be more than Advance Section  
 c) Rear Section will be less than Advance Section  
 d) none
- 84) \_\_\_\_\_ audible buzzers are stopped by pressing the Acknowledgement button ( )  
 a) K1 & K2                      b) K2 & K3                      c) K3 & K4                      d) K1 & K4
- 85) \_\_\_\_\_ audible buzzers are stopped by normalizing the LSS & IB Signal controls ( )  
 a) K1 & K2                      b) K2 & K3                      c) K3 & K4                      d) K1 & K4



- 98) LCPR picks up when\_\_\_\_\_ ( )  
 a) IB TPR ↑ IBS DR ↑ PR LC contact      b) IB TPR ↑ IBS DR ↑ PR LC contact  
 c) IB TPR ↑ IBS DR ↓ PR LC contact      d) IB TPR ↓ IBS DR ↓ PR LC contact
- 99) ASR 1 and ASR 2 picks up through\_\_\_\_\_ ( )  
 a) LSS TPR ↑ LCPR ↑ PR TOL contact      b) LSS TPR ↑ LCPR ↓ PR TOL contact  
 c) LSS TPR ↓ LCPR ↑ PR TOL contact      d) LSS TPR ↓ LCPR ↓ PR TOL contact
- 100) Intermediate Block Signaling system can be provided on ( )  
 a) single line    b) double line      c) multiple line      d) all

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
c	b	c	d	a	b	a	b	c	c
11	12	13	14	15	16	17	18	19	20
b	d	d	a	d	a	b	a	a	b
21	22	23	24	25	26	27	28	29	30
c	d	b	d	c	c	a	a	c	d
31	32	33	34	35	36	37	38	39	40
a	b	d	d	b	a	a	b	c	d
41	42	43	44	45	46	47	48	49	50
c	a	b	c	a	d	d	c	a	a
51	52	53	54	55	56	57	58	59	60
b	b	c	c	a	d	c	a	c	d
61	62	63	64	65	66	67	68	69	70
d	a	c	a	d	d	d	c	b	a
71	72	73	74	75	76	77	78	79	80
b	b	c	b	c	d	a	b	a	b
81	82	83	84	85	86	87	88	89	90
b	c	a	d	b	d	d	c	b	b
91	92	93	94	95	96	97	98	99	100
c	b	d	a	d	c	c	c	b	d



- 15) Wire to wire test is done ( )  
 a) after all wires are drawn                      b) before all wires are drawn  
 c) after 20 % of wires are drawn                d) none
- 16) Wire to wire test is done ( )  
 a) after all wires are drawn                      b) before all wires are drawn  
 c) after soldering drawn                          d) a and c
- 17) Bell test is carried out to check whether ( )  
 a) wiring is done as per wiring sheet            b) wire drawn has continuity  
 c) any wiring faults are accumulated            d) all
- 18) The wireman shall give the following information to the tester after holding the wire ( )  
 a) name of the relay                                  b) color of the wire  
 c) no. of wires in contact cavity                 d) all
- 19) The wireman after verifying the Relay plug board shall loudly spell out ( )  
 a. relay name                      b) rack no                      c) number of wires                      d) all
- 20) Approach locking, back locking and conflicting signals are not taken off is reflected in ( )  
 a. Table of control            b) Signalling plan            c) route plan                      d) none
- 21) Cross sheet testing means ( )  
 a. testing of parallel movements                      b) testing of crossover movements  
 c. testing of conflicting signals                      d) all
- 22) Conflicting signals are of \_\_\_\_\_ types ( )  
 a. 2                      b) 3                      c) 4                      d) none
- 23) \_\_\_\_\_ conflicting signals are reflected in TOC ( )  
 a. Indirectly conflicting                      b) directly                      c) a and b                      d) none
- 24) Conditional locking includes ( )  
 a. locking condition                      b) free condition                      c) a and b                      d) none
- 25) Functional test is to be done ( )  
 a. when new equipment is commissioned                      b) indoor equipment is changed  
 c) track side equipment/cable is changed                      d) all
- 26) Signaling is based on approved \_\_\_\_\_ plan ( )  
 a) Operating                      **b) Engineering**                      c) Mechanical plan                      d) S & T
- 27) The Signaling Plan is approved by \_\_\_\_\_ ( )  
 a) **CSTE**                      b) CRS                      c) CSE                      d) COM

ANSWERS KEY


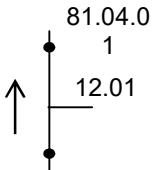
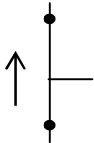
1	2	3	4	5	6	7	8	9	10
b	a	a	b	c	c	b	c	c	d
11	12	13	14	15	16	17	18	19	20
d	a	d	b	a	d	d	d	d	a
21	22	23	24	25	26	27	28	29	30
c	a	b	c	d	b	a			

## ST-29 : SIEMENS INTERLOCKING

- 1) The normal operating voltage of metal to metal relay is \_\_\_\_\_ ( )  
a) 12v dc                      b) 24v dc                      c) 48v dc                      d) 60v dc
- 2) The maximum contacts available in K-50 relay is \_\_\_\_\_ ( )  
a) 3                              b) 5                              c) 8                              d) 16
- 3) The normal coil relay in interlocked mini-group will be at \_\_\_\_\_ position. ( )  
a) middle                      b) top                              c) bottom                      d) rear
- 4) Neutral relay pickup time is \_\_\_\_\_ ( )  
a) 25ms to 60 ms                      b) 30ms to 65 ms  
c) 25ms to 45 ms                      d) 20ms to 45 ms
- 5) Neutral relay drop away time is \_\_\_\_\_ ( )  
a) 7ms to 25 ms                      b) 7 ms to 15 ms  
c) 7ms to 20 ms                      d) 17 ms to 25 ms
- 6) AC- Immunized relay pick time is \_\_\_\_\_ ( )  
a) 20ms                      b) 200ms                      c) 15ms                      d) 150ms
- 7) AC- Immunized relay drop away time is \_\_\_\_\_ ( )  
a) 2ms                              b) 50ms                              c) 20ms                              d) 5 ms
- 8) \_\_\_\_\_ pins will prevent plugging the relay in inverted position. ( )  
a) code                      b) guide                      c) fixed                      d) non interchangeable
- 9) Coil resistance of interlocked relay is \_\_\_\_\_ ohm ( )  
a) 615                      b) 515                      c) 415                      d) 315
- 10) Contact configuration of AC immunized relay(both top & bottom) is \_\_\_\_\_ ( )  
a) 4F/4B                      b) 6F/2B                      c) 5F/3B                      d) 5F/1B
- 11) Sh. signal group controls \_\_\_\_\_ shunt signals independently. ( )  
a) 1                              b) 2                              c) 3                              d) 4
- 12) The capacity of major group is upto \_\_\_\_\_ neutral relays. ( )  
a) 2                              b) 8                              c) 15                              d) 30
- 13) 160-way tag block can accommodate \_\_\_\_\_ no. of mini group relays wiring. ( )  
a) 2                              b) 4                              c) 6                              d) 8
- 14) 200-way tag block can accommodate \_\_\_\_\_ no. of minor group relays wiring ( )  
a) 2                              b) 4                              c) 6                              d) 8
- 15) The position of reverse coil in interlocked mini group is \_\_\_\_\_ ( )  
a) Top                      b) Bottom                      c) middle                      d) none
- 16) Each universal route group caters for \_\_\_\_\_ route sections. ( )  
a) 5                              b) 4                              c) 3                              d) 2
- 17) U(N)LR proves that the sub-route is \_\_\_\_\_ ( )  
a) Free                      b) locked                      c) under cancellation                      d) none



- 18) UYR1 & UYR2 in a route group, functions as\_\_\_\_\_ . ( )  
 a) Sectional route release                      b) sub-route release  
 c) sub-route lock                                      d) none
- 19) \_\_\_\_\_ is a route section clear checking relay in a route group. ( )  
 a) DUCR              b) U(R)S                      c) U(N)S                      d) none
- 20) \_\_\_\_\_ relay proves that the route section is set. ( )  
 a) U(R)S              b) U(N)S                      c) UDKR                      d) none
- 21) \_\_\_\_\_ relay proves that the route section is not set ( )  
 a) U(R)S              b) U(N)S                      c) UDKR                      d) none
- 22) Point chain group controls \_\_\_\_\_ no. of points. ( )  
 a) 3                      b) 5                                      c) 6                                      d) 8
- 23) WKR3 is provided with \_\_\_\_\_ no. of coils. ( )  
 a) 1                      b) 2                                      c) 3                                      d) none
- 24) Color of GN button ( )  
 a) Red                      b) red with dot                      c) blue                                      d) grey
- 25) EWN button is operated when \_\_\_\_\_ ( )  
 a) Point track failed                                      b) Point track is clear  
 c) Signal taken off                                      d) Route locked.
- 26) In Siemens RRI, which relay circuit ensures that whole route is available for requested signal movement and prevents partial route setting? ( )  
 a) Z1UR              b) DUCR                      c) UDKR                      d) ZDU CR
- 27) Main signal initiation relay is \_\_\_\_\_ ( )  
 a) MN-GZR              b) MN- GR1                      c) MN-GR2                      d) none
- 28) In Siemens RRI, Route initiation relay is \_\_\_\_\_ ( )  
 a) Z1RR              b) U(R) S                      c) Z1UR                      d) GR1
- 29) In Siemens RRI ,Sub route locking relay \_\_\_\_\_ ( )  
 a) GLSR              b) U(R) S                      c) U(R)LR                      d) GR1
- 30) One signal one train feature achieved through \_\_\_\_\_ relay ( )  
 a) G(N)LR              b) U(N) LR                      c) U(R)LR                      d) GLSR
- 31) As per Railway Board policy, Route Relay Interlocking should be provided for centralized operation of points and signals at stations which have \_\_\_\_ routes ( )  
 (a) Up to 50              (b) 50 to 100                      (c) 100 to 200                      (d) Above 200
- 32) In Siemens RRI, a sub-route can have ( )  
 (a) 1 no. of route section                                      (b) 1 or 2 nos. of route sections  
 (c) 3 or 4 nos. of route sections                                      (d) 1 or more nos. of route sections

- 33) In Siemens RRI, the following symbol is used for .....  ( )
- (a) Point locking relay (b) Point detection relay  
(c) Route checking relay (d) Route locking relay
- 34) In Siemens RRI, one point chain group can cater for ( )
- (a) 5 nos. of major point groups (b) 6 nos. of major point groups  
(c) 7 nos. of major point groups (d) 8 nos. of major point groups
- 35) In Siemens RRI, 'B' route section setting relay 'B' U(R)S controls ( )
- (a) Setting of point in the straight route.  
(b) Setting of point in the diverging route.  
(c) Sequential proving of sub-route track circuits for automatic route release by the passage of train  
(d) Locking of sub-route when it is engaged in a signalled move.
- 36) In Siemens RRI, the coil connections for bottom relay of a K50 neutral mini group are terminated on ( )
- (a) 11-12 (b) 13-14 (c) 91-92 (d) 93-94
- 37) In Siemens RRI, the standard contact configuration for Route lamp Checking Relay UECR is ( )
- (a) 6F/2B (b) 6F/1B (c) 4F/4B (d) 5F/1B
- 38) In Siemens RRI, the Sub-route Releasing relay is ( )
- (a) U(R)S (b) G(R)LR (c) U(N)LR (d) U(R)LR
- 39) Relay provided to achieve interlocking between main signal & shunt signal leading towards the same direction. ( )
- (a) SH GZR (b) SH G(R/N)R (c) SH GLSR (d) SH GR2
- 40) In Siemens RRI, the number 04 shown in the following figure indicates ..... ( )
- (a) Contact termination on tag block  
(b) Rack number on which the relay is provided  
(c) Position of the relay in relay rack  
(d) Contact number of the relay
- 
- 41) In Siemens RRI, the following symbol indicates ..... ( )
- (a) Front contact of a normally de-energized neutral relay  
(b) Back contact of a normally energized neutral relay  
(c) Back contact of a normally de-energized neutral relay  
(d) Front contact of a normally energized neutral relay
- 
- 42) In Siemens RRI, code pins are provided on the relay base plate of mini groups \_\_\_\_\_ ( )
- (a) To prevent the plugging of wrong relay in a base.  
(b) To prevent plugging of relay in a wrong direction  
(c) To prevent picking up of relay during wrong operation  
(d) All of the above

- 43) Which of these relays does not pick up in a 2-aspect main signal group? ( )  
 (a) GR1 (b) GPR1 (c) GR2 (d) GR3
- 44) Which of these relays does not pick up in a 3-aspect main signal group? ( )  
 (a) GR1 (b) GLSR (c) G(R)LR (d) GR3
- 45) Which of these relays can pick up in a signal group through button operation on panel even if SM's key is OUT to facilitate restoration of cleared signal to 'ON' position in case of emergency? ( )  
 (a) GNR (b) EGNR  
 (c) Both GNR & EGNR (d) None of the above
- 46) In RRI Interlocking system, the function of Points Chain Group is to ensure that \_\_\_\_\_ ( )  
 (a) Starting of point machines in a route is one after the other during route setting.  
 (b) Starting of all the point machines in a route is simultaneous during route setting.  
 (c) Picking up of Z1WR in each Point group is simultaneous during route setting.  
 (d) None of the above
- 47) The K-50 interlocked relay used in Siemens RRI contact arrangement is ( )  
 (a) 5F/3B (b) 6F/2B (c) 4F/4B (d) All of the above
- 48) The standard contact configuration of Siemens K50 ON/OFF ECR is ( )  
 (a) 6F/2B (b) 5F/3B (c) 4F/4B (d) 3F/3B
- 49) In Siemens Route Relay Interlocking, the Point detection relays NWKR and RWKR are ( )  
 (a) Always energized  
 (b) Normally energized and are de-energized when route setting is done.  
 (c) Always de-energized  
 (d) Normally de-energized and are energized when route setting is done.
- 50) In Siemens RRI, the Direction determining relay is ( )  
 (a) ZU(R/N)R (b) W(R/N)R (c) W(R/N)LR (d) (R/N) WLR

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
d	c	c	a	b	b	b	b	a	c
11	12	13	14	15	16	17	18	19	20
b	d	b	a	a	d	a	a	a	a
21	22	23	24	25	26	27	28	29	30
b	d	b	a	a	d	a	c	c	d
31	32	33	34	35	36	37	38	39	40
d	d	b	d	b	d	d	c	b	c
41	42	43	44	45	46	47	48	49	50
d	a	d	c	c	a	d	d	d	a



- 16) CWLS "NO" contact is used to pick up \_\_\_\_\_ relay ( )  
 a. LXRR                      b. BCR                      c. LXNR                      d. LXCLR
- 17) \_\_\_\_\_ band is used for closing of gate in MFT make EOLB ( )  
 a. 0<sup>0</sup>-85<sup>0</sup>                      b. 80<sup>0</sup>-85<sup>0</sup>                      c. 85<sup>0</sup>-5<sup>0</sup>                      d. 0<sup>0</sup>-5<sup>0</sup>
- 18) \_\_\_\_\_ band is used for snubbing in MFT make EOLB ( )  
 a. 0<sup>0</sup>-85<sup>0</sup>                      b. 80<sup>0</sup>-85<sup>0</sup>                      c. 85<sup>0</sup>-10<sup>0</sup>                      d. 0<sup>0</sup>-5<sup>0</sup>
- 19) Snubbing resistor value in MFT make EOLB \_\_\_\_\_ ( )  
 a. 10Ω /100w                      b. 5Ω /10w                      c. 100Ω /10w                      d. 5Ω /100w
- 20) \_\_\_\_\_ is used for picking of A/B LXR in MFT make EOLB ( )  
 a. LS1                      b. LS2                      c. CWLS                      d. 0<sup>0</sup>-5<sup>0</sup> band
- 21) When booms are closed & locked at gate lodge \_\_\_\_\_ relay picks up in MFT make EOLB ( )  
 a. LXR                      b. BCR                      c. LXNR                      d. LXCLR
- 22) Range of operation for MOLB ( )  
 a. 300 mt                      b. 180 mt                      c. 120 mt                      d. 150 mt
- 23) Height of the booms from road surface is to be maintained between ( )  
 a. 0.8 mt to 1 mt                      b. 1 mt only  
 c. less than 1 mt only                      d. 1 mt to 1.5 mt
- 24) Distance between gate post and CLOT is \_\_\_\_\_ mts ( )  
 a. 5                      b. 6                      c. 8                      d. 20
- 25) Distance between gate lodge and CLOT is \_\_\_\_\_ mts ( )  
 a. 5                      b. 6                      c. 8                      d. 20
- 26) Distance between height gauge and CLOT is \_\_\_\_\_ mts ( )  
 a. 5                      b. 6                      c. 8                      d. 20
- 27) Speed breakers shall be provided at \_\_\_\_\_ mts from CLOT ( )  
 a. 5                      b. 6                      c. 8                      d. 20
- 28) Fencing shall be provided up to \_\_\_\_\_ mts on either side of the gate parallel to the track ( )  
 a. 5                      b. 6                      c. 8                      d. 15
- 29) Gate signal shall be provided not less than \_\_\_\_\_ mts from Gate ( )  
 a. 120                      b. 180                      c. 300                      d. 400



- 45) \_\_\_ is used for closing in HEIDZ make EOLB ( )  
 a. LS1                      b. LS2                      c. LS3                      d. LS4
- 46) \_\_\_ is used for opening in HEIDZ make EOLB ( )  
 a. LS1                      b. LS2                      c. LS3                      d. LS4
- 47) \_\_\_ is used for snubbing in HEIDZ make EOLB ( )  
 a. LS1                      b. LS2                      c. LS3                      d. LS4
- 48) \_\_\_ is used in RR circuit of HEIDZ make EOLB ( )  
 a. LS1                      b. LS2                      c. LS3                      d. LS4
- 49) NSR relay picks up when gate is \_\_\_\_\_ in HEIDZ make EOLB ( )  
 a. Close                      b. Open                      c. Lock                      d. Unlock
- 50) Solenoid coil resistance is \_\_\_\_\_ ohms in HEIDZ make EOLB ( )  
 a. 5                      b. 25                      c. 48                      d. 100

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
a	b	c	d	d	b	b	a	c	c
11	12	13	14	15	16	17	18	19	20
b	a	b	a	d	b	c	c	d	a
21	22	23	24	25	26	27	28	29	30
a	d	a	a	b	c	d	d	b	d
31	32	33	34	35	36	37	38	39	40
c	a	b	a	a	a	b	c	d	c
41	42	43	44	45	46	47	48	49	50
a	a	b	c	a	b	c	d	b	b

## ST-31a : ELECTRONIC INTERLOCKING

- 1) Prime inputs for the EI Interface design are ----- ( )  
a) SIP, FPD and RCC      b) card files      c) Software      d) cables
- 2) The calculation of EI card file /OC/Housing is mainly depends on ----- ( )  
a) Communication ports      b) Communication cables  
c) Vital & Non vital bit chart      d) Software
- 3) In EI, application software is----- ( )  
a) Common to all stations      b) Station specific  
c) Similar to Executive software      d) remotely loaded
- 4) In case of Distributed Interlocking system, \_\_\_\_\_ cable is required to be used ( )  
a) Signaling cable      b) Optical Fiber Cable  
c) Quad cable      d) Power cable
- 5) In Electronic interlocking system, executive software is ----- ( )  
a) Station specific.  
b) Common to all EI's of same model of same OEM.  
c) Similar to Application software  
d) separately not required.
- 6) When any unsafe failures are detected by an EI ----- ( )  
a) System is steady      b) Supply voltage to non vital outputs cuts off  
c) No action takes place      d) System shutdown and all outputs withdrawn
- 7) External Data logger provision to EI is ----- ( )  
a) Not mandatory      b) Mandatory  
c) It is a part of EI Hardware      d) It is a part of VDU
- 8) By using Object Controllers ----- ( )  
a) number of inputs can be minimized  
b) main signaling cable can be eliminated due to OFC communication  
c) number of outputs can be minimized  
d) All
- 9) The ----- converts High level language to Machine Language ( )  
a) Source code      b) Object code  
c) Compiler      d) Reverse compiler
- 10) As per latest guide lines ----- standby set up is to be used in EI. ( )  
a) Cold standby      b) Warm standby  
c) Power backup      d) Hot Standby.
- 11) ----- cable is required for the VDU connectivity with EI ( )  
a) 2.5 sq.mm signaling cable      b) 1.5 Sq mm Signaling cable  
c) power cable      d) OFC







- 40) In MLK-II EI, the constant output supply from PS PCB is\_\_\_\_\_ ( )  
 A) +24v, +12v & +5v B) +12v, -12v & +5v  
 C) +12v, -12v & +24v D) +12v, -12v & +60v
- 41) In MLK-II EI, VCOR has\_\_\_\_\_type of contacts ( )  
 A) independent B) dependent C) both D) none
- 42) In MLK-II EI, VCOR has\_\_\_\_\_contact combinations ( )  
 A) 6F/6B B) 8F/8B C) 6F/B D) 8F/B
- 43) In MLK-II EI, supply to VCOR is directly controlled by\_\_\_\_\_PCB ( )  
 A) CPU B) PS C) both D) none
- 44) In MLK-II EI, supply to VCOR is indirectly controlled by\_\_\_\_\_PCB ( )  
 A) CPU B) PS C) both D) none
- 45) In MLK-II EI, supply to VCOR is given when\_\_\_\_\_signal is received ( )  
 A) CPU B) CPS C) CRC D) none
- 46) In MLK-II EI, CPS signal is generated by\_\_\_\_\_card ( )  
 A) CPU B) PS C) both D) none
- 47) In MLK-II EI, CPS signal is received by\_\_\_\_\_card ( )  
 A) CPU B) PS C) both D) none
- 48) In MLK-II EI, CPS signal frequency is\_\_\_\_\_Hz ( )  
 A) 50 B) 150 C) 250 D) none
- 49) In MLK-II EI, VCOR front contacts controls the power supply of\_\_\_circuits ( )  
 A) Vital Input B) Vital Output C) NV input D) NV output
- 50) In MLK-II EI, CPS signal is generated as far as \_ is intact & working properly( )  
 A) hardware B) software C) both D) none
- 51) In MLK-II EI, if system is malfunctioning then CPS signal is withdrawn by \_ ( )  
 A) CPU PCB B) PS PCB C) both D) none
- 52) In MLK-II EI, if CPS signal is withdrawn, then supply to VCOR cuts off by \_ ( )  
 A) CPU PCB B) PS PCB C) both D) none
- 53) In MLK-II EI,\_\_\_\_\_software is common for all station's CPU cards ( )  
 A) Executive B) application logic C) both D) none
- 54) In MLK-II EI,\_\_\_\_\_software is different for all station's CPU cards ( )  
 A) Executive B) application logic C) both D) none
- 55) In MLK-II EI, Executive software version is displayed on \_ of CPU front panel( )  
 A) upper display B) lower display C) both D) none
- 56) In MLK-II EI, application software version is displayed on \_ of CPU front panel( )  
 A) upper display B) lower display C) both D) none

- 57) In MLK-II EI, Upper & Lower displays of CPU scrolls the information with \_\_\_ character type displays ( )  
 A) 4-numeric      B) 4-alfa numeric      C) 4-alfa      D) none
- 58) In MLK-II EI, CPU PCB has \_\_\_ number of communication serial link ports ( )  
 A) 3      B) 4      C) 5      D) 6
- 59) In MLK-II EI, port no. \_\_\_ is provided on CPU front panel ( )  
 A) 3      B) 4      C) 5      D) 6
- 60) In MLK-II EI, application logic program can be downloaded or uploaded with ( )  
 A) port no. 3      B) port no. 4      C) port no. 5      D) port no. 6
- 61) In MLK-II EI, Port-1 & Port-2 of CPU card is campatable with\_ ( )  
 A) RS 232      B) RS 423/232      C) RS 485      D) all
- 62) In MLK-II EI, Port-4 & Port-5 of CPU card is campatable with\_ ( )  
 A) RS 232      B) RS 423/232      C) RS 485      D) all
- 63) In MLK-II EI, Port-3 of CPU card is campatable with\_\_\_\_\_ ( )  
 A) RS 232      B) RS 423/232      C) RS 485      D) all
- 64) In MLK-II EI, date & time can be adjusted through\_\_\_\_\_ ( )  
 A) toggle switches on CPU PCB front panel      B) Maintenance PC  
 C) Both A & B      D) None
- 65) In MLK-II EI, resetting can be done through\_\_\_\_\_ ( )  
 A) toggle switches on CPU PCB front panel      B) Maintenance PC  
 C) Both A & B      D) None
- 66) In MLK-II EI, CPU PCB is stored with \_\_\_\_\_ data for accessing & analyzing ( )  
 A) user      B) event      C) error      D) all
- 67) In MLK-II EI, CPU PCB can store user data up to \_\_\_\_\_ information ( )  
 A) 90,000      B) 5,000      C) 50      D) none
- 68) In MLK-II EI, CPU PCB can store event data up to \_\_\_\_\_ information ( )  
 A) 90,000      B) 5,000      C) 50      D) none
- 69) In MLK-II EI, CPU PCB can store error data up to \_\_\_\_\_ information ( )  
 A) 90,000      B) 5,000      C) 50      D) none
- 70) In MLK-II EI, CPS means \_\_\_\_\_ ( )  
 A) Cycles per Second      B) Conditional Power Supply  
 C) Checks Pulse of Signal      D) none
- 71) In MLK-II EI, Port no. 5 of CPU PCB is named as \_\_\_\_\_ port ( )  
 A) Maintenance      B) Diagnostic      C) debug      D) all
- 72) In MLK-II EI, Port no. 5 of CPU PCB is connected to \_\_\_\_\_ ( )  
 A) Laptop      B) Maintenance PC      C) A or B      D) both A & B

- 73) In MLK-II EI, CPU PCB has 4 numbers of\_\_\_\_\_for storing software ( )  
 A) RAMs B) Flash EPROMs C) EEPROM D) none
- 74) In MLK-II EI, Application & Executive software of CPU is stored in\_\_\_\_\_( )  
 A) 4 nos. of Flash EPROMs B) EEPROM  
 C) 4 nos. of Low power Static Ram D) 2 nos. of Fast Static Ram
- 75) In MLK-II EI, Vital Data Processing in CPU is done by\_\_\_\_\_( )  
 A) 4 nos. of Flash EPROMs B) EEPROM  
 C) 4 nos. of Low power Static Ram D) 2 nos. of Fast Static Ram
- 76) In MLK-II EI, Event / Error Data is stored in CPU by\_\_\_\_\_( )  
 A) 4 nos. of Flash EPROMs B) EEPROM  
 C) 4 nos. of Low power Static Ram D) 2 nos. of Fast Static Ram
- 77) In MLK-II EI, CPU card top pin connector assembly PCB has\_\_\_\_\_for storing site specific configuration data ( )  
 A) EPROMs B) Flash EPROMs C) EEPROM D) none
- 78) In MLK-II EI, the site specific configuration is\_\_\_\_\_for all stations ( )  
 A) same B) different C) both D) none
- 79) In MLK-II EI, site specific configuration data is\_\_\_\_if CPU card is removed ( )  
 A) deleted B) remains intact C) changed D) none
- 80) In MLK-II EI, Minimum System Start-Up voltage is\_\_\_\_ ( )  
 A) 12v DC B) 12v AC C) 11.5v DC D) 11.5v AC
- 81) In MLK-II EI, the processor used in CPU card is\_\_\_\_ ( )  
 A) Motorola 68832 B) Motorola 68332 C) Motorola 68322 D) None
- 82) In MLK-II EI, maximum \_ no. of inputs can be connected to vital Input card ( )  
 A) 8 B) 16 C) 32 D) 64
- 83) In MLK-II EI, each vital output card can drive\_\_\_\_\_relays ( )  
 A) 8 B) 16 C) 32 D) 64
- 84) In MLK-II EI, Max.\_\_\_\_\_no. of I/O can be connected to Non-Vital I/O card ( )  
 A) 8 B) 16 C) 32 D) 64
- 85) In MLK-II EI, Top & Bottom pin connectors for Non-Vital I/O PCB has\_\_\_\_\_( )  
 A) 48 & 48 B) 48 & 96 C) 96 & 96 D) none
- 86) In MLK-II EI, Top & Bottom pin connectors of 48 & 96 is provided for\_\_\_\_card( )  
 A) Power Supply B) Vital Input & Output C) CPU D) All
- 87) In MLK-II EI, for\_\_\_\_\_Address Select PCB is connected on top pin connector ( )  
 A) NV I/O cards B) Power Supply card C) CPU card D) All
- 88) In MLK-II EI, for\_\_\_\_\_Address Select PCB is connected on top pin connector ( )  
 A) NV I/O cards B) Vital Output card C) Vital Input card D) All
- 89) In MLK-II EI, on Address Select PCB\_\_\_\_\_nos. of jumpers are provided ( )  
 A) 4 B) 6 C) 8 D) 12

- 90) In MLK-II EI, \_\_\_\_\_ arrangement is provided to prevent plugging of wrong PCB ( )  
 A) Jumpers                      B) Keying Plugs                      C) EEPROM                      D) none
- 91) In MLK-II EI, In Keying plug arrangement \_\_\_\_\_ plugs are provided out of \_\_\_\_\_ positions ( )  
 A) 3, 6                      B) 6, 12                      C) 5, 16                      D) none
- 92) In MLK-II EI, Keying plug arrangement is provided adjacent to \_\_\_\_\_ connector ( )  
 A) Top                      B) Bottom                      C) Both                      D) none
- 93) In MLK-II EI, \_\_\_\_\_ pin connector is used for physical wiring ( )  
 A) Top                      B) Bottom                      C) Both                      D) none
- 94) In MLK-II EI, \_\_\_\_\_ circuits are provided with single cutting arrangement ( )  
 A) Non-vital Input    B) Non-vital Output                      C) Vital Output                      D) all
- 95) In MLK-II EI, \_\_\_\_\_ circuits are provided with double cutting arrangement ( )  
 A) Non-vital Input    B) Non-vital Output                      C) Vital Output                      D) Vital Input
- 96) In MLK-II EI, \_\_\_\_\_ circuits are protected with poly switches ( )  
 A) Non-vital Output    B) Vital Output                      C) Both A & B                      D) None
- 97) In MLK-II EI, \_\_\_\_\_ relay ensures fail safe functioning of system ( )  
 A) PCOR                      B) MCOR                      C) VCOR                      D) None
- 98) VCOR Relay contacts current carrying capacity is \_\_\_\_\_ Amp ( )  
 A) 1A                      B) 3A                      C) 5A                      D) 0.5A
- 99) Normal working current of VCOR is \_\_\_\_\_ ( )  
 A) 3 ma                      B) 3 A                      C) 30 ma                      D) 30 A
- 100) In MLK-II EI, \_\_\_\_\_ circuit is provided with high side software controlling switch ( )  
 A) Non-vital Input    B) Non-vital Output                      C) Vital Output                      D) Vital Input
- 101) MEI 633 is of \_\_\_\_\_ architecture ( )  
 a) 2 Out of 2                      b) 1 Out of 1                      c) 2 Out of 3                      d) 2 Out of 4
- 102) Cycle time in MEI633 is \_\_\_\_\_ ( )  
 a) 222ms                      b) 111ms                      c) 444ms                      d) 333ms
- 103) Intercommunication between MEI633 and the OCs is \_\_\_\_\_ ( )  
 a) CLA                      b) RS-232/OFC                      c) RS 485/OFC                      d) RS-423
- 104) Input supply for the Mini IPS provided in Medha EI room is \_\_\_\_\_ ( )  
 a) 24V DC                      b) 230V AC                      c) 110V AC                      d) 110V DC
- 105) The output supply of Dc-Dc converters in the Mini IPS of MEI 633 is \_\_\_\_\_ ( )  
 a) 24V DC                      b) 12V DC                      c) 110V DC                      d) 60V DC
- 106) Inter communication between MEI 633 and data logger is \_\_\_\_\_ ( )  
 a) RS-485/OFC                      b) CLA  
 c) RS-232/OFC                      d) RS-423

- 107) Max No of OCs that can be connected to MEI 633 is ----- ( )  
a) 64                      b) 128                      c) 16                      d) 32
- 108) Max No of Input cards can be provided in each OC is ----- in MEI 633 ( )  
a) 6                      b) 4                      c) 5                      d) 3
- 109) Max No of output cards can be provided in each OC is ----- in MEI 633 ( )  
a) 6                      b) 4                      c) 5                      d) 3
- 110) Max No of inputs can be connected to each Vital I/P card is -- in MEI 633 ( )  
a) 8                      b) 16                      c) 32                      d) 12
- 111) MEI 633, max. no. of outputs can be connected to each Vital O/P card is --( )  
a) 4                      b) 16                      c) 32                      d) 8
- 112) ----- type of power supply card is provided for CVC/VIC card in MEI 633 ( )  
a) B TYPE                      b) C TYPE                      c) A TYPE                      d) D TYPE
- 113) ----- type of power supply card is provided for CCC card in MEI 633. ( )  
a) B TYPE                      b) C TYPE                      c) A TYPE                      d) D TYPE
- 114) ----- type of power supply cards are provided for OCs in MEI 633. ( )  
a) A & B TYPE    b) B & C TYPE  
c) C & D TYPE    d) A & D TYPE
- 115) ----- type of power supply cards are provided for PP in MEI 633. ( )  
a) A & B TYPE    b) B & C TYPE  
c) C & D TYPE    d) A & D TYPE
- 116) ----- No of Rs485 serial ports are available at CIU in MEI 633 ( )  
a) 16                      b) 12                      c) 8                      d) 10
- 117) ----- No of Rs232 serial ports are available at CIU in MEI 633 ( )  
a) 3                      b) 8                      c) 4                      d) 2
- 118) ERROR messages are displayed on ----- of CIU in MEI 633 ( )  
a) FDP                      b) FMS                      c) VIF                      d) FPD
- 119) Max No of vital I/Os that can be handled by an CIU of MEI 633 is ---- ( )  
a) 4072    b) 2048                      c) 1048                      d) 3072
- 120) Max No of Non vital I/Os that can be handled by an CIU of MEI 633 --- ( )  
a) 4072                      b) 2048                      c) 1048                      d) 3072
- 121) In Medha EI, RM means ----- ( )  
a) Random Memory    b) Relay Module  
c) Ring Modem    d) Repetition Maximum
- 122) In Medha EI, RMs acts like----- converter ( )  
a) Serial to OFC    b) serial to parallel  
c) Parallel-OFC    d) serial-USB

- 123) In each port of CIU ----- No of OCs can be connected in MEI 633. ( )  
 a) 8                      b) 6                      c) 4                      d) 32
- 124) CIF card is used in ----- in MEI 633 ( )  
 a) OC                      b) PP                      c) MT                      d) CIU
- 125) In MEI 633, The rated voltage of VCOR----- ( )  
 a) 12V DC                      b) 5 V DC                      c) 60V DC                      d) 24V DC
- 126) MEI 633 has ----- standby arrangement ( )  
 a) Hot                      b) Warm                      c) Cold                      d) None
- 127) Max response time for MEI 633 is ----- ( )  
 a) < 1 sec                      b) < 2 sec                      c) < 3 sec                      d) < 4 sec
- 128) Intercommunication between MEI 633 and the PP is ----- ( )  
 a) Parallel                      b) Rs-232                      c) OFC                      d) Rs-423
- 129) Input supply for the PSB cards provided in Medha EI is ----- ( )  
 a) 5V DC                      b) 24V DC                      c) 12V DC                      d) 4.8V DC
- 130) The output supply of PSB in MEI 633 is ----- ( )  
 a) 4.5V DC                      b) 5.5V DC                      c) 4.8V DC                      d) 5.8V DC
- 131) ----- communication channel provide between MEI 633 and MTC ( )  
 a) Rs-423                      b) Rs-232                      c) CLA                      d) Rs-485
- 132) Max No of CIUs that can be inter connected to MEI 633 is ----- ( )  
 a) 2 to 4                      b) 2 to 6                      c) 2 to 5                      d) 2 to 3
- 133) Max No of RS 485 channels provided in each CIU is ----- ( )  
 a) 8                      b) 12                      c) 10                      d) 16
- 134) Max No of RS 232 channels provided in each CIU is ----- ( )  
 a) 6                      b) 5                      c) 4                      d) 3
- 135) Max No of I/Ps connected to each NV Input card of PP ----- in MEI 633 ( )  
 a) 8                      b) 16                      c) 64                      d) 128
- 136) Max no of O/Ps can be connected to each NV O/P card of PP -- in MEI 633( )  
 a) 8                      b) 16                      c) 128                      d) 64
- 137) 'A' - type of power supply card is provided for \_\_\_\_\_ in MEI 633. ( )  
 a) CIU                      b) OC                      c) COUNTER BOX                      d) PP
- 138) 'C'-type of power supply card is provided for ----- in MEI 633 ( )  
 a) CIU                      b) OC                      c) COUNTER BOX                      d) PP
- 139) 'B'-type of power supply cards are provided for ----- in MEI 633 ( )  
 a) CIU                      b) Mini IPS                      c) MTC                      d) Data logger
- 140) Voltage & Current rating of 'B' type of power supply cards ----- in MEI 633 ( )  
 a) 4.5V @ 8A                      b) 4.5V @ 3A                      c) 4.5V @ 6A                      d) 4.5V @ 2A







- 171) NCDM consists of ----- OFC ports in Westrace EI. ( )  
 a) 1                      b) 2                      c) 3                      d) 4
- 172) IHCL is used for ----- in Westrace EI. ( )  
 a) Interconnects between VLC & OPC  
 b) Interconnects between VLM & NCDM  
 c) Intercommunication between NCDM to NCDM  
 d) Intercommunication between VLM to VLM
- 173) INCL is used for ----- in Westrace EI. ( )  
 a) Interconnects between VLC & OPC  
 b) Interconnects between VLM & NCDM  
 c) Intercommunication between NCDM to NCDM  
 d) Intercommunication between VLM to VLM
- 174) WESTRACE EI can be connected through ----- port . ( )  
 a) SERIAL                      b) ETHERNET                      c) OFC                      d) PARALLEL
- 175) PFM means ----- in Westrace EI. ( )  
 a) Power Factor Module                      b) Power filter module  
 c) Protection factor module                      d) Protection filter module
- 176) OPCR works on ----- voltage in Westrace EI. ( )  
 a) 12V DC                      b) 24V DC                      c) 50V DC                      d) 60V DC
- 177) In WESTRACE EI, the RJ 45 connector is provided in ----- card ( )  
 a) VLM                      b) NCDM                      c) VPIM                      d) VROM
- 178) In WESTRACE EI, OFC ports are provided in ----- card ( )  
 a) VLM                      b) NCDM                      c) VPIM                      d) VROM
- 179) VDU is to be connected to ----- port in Westrace EI. ( )  
 a) Ethernet                      b) OFC                      c) Parallel                      d) Serial / Ethernet
- 180) Moviolaw can be connected to ----- port ( )  
 a) Ethernet / serial                      b) OFC                      c) Parallel                      d) Serial
- 181) In WESTRACE EI, External data logger can be connected to ----- port ( )  
 a) Serial                      b) Parallel                      c) OFC                      d) Ethernet
- 182) System Input supply for the WESTRACE EI is ----- ( )  
 a) 12v & 60v DC                      b) 24v & 50v DC  
 c) 24v & 60v DC                      d) 12v & 60 v DC
- 183) In WESTRACE EI, Slot No ----- is dedicated for PSU ( )  
 a) 1                      b) 2                      c) 15                      d) 16
- 184) In WESTRACE EI, blank slot is filled with ----- ( )  
 a) OPC card                      b) Blanker card                      c) VPIM card                      d) VROM card

- 185) In WESTRACE EI, Slot no 1&15 in the 1st Housing filled with ----- ( )  
 a) VROM card      b) VPIM card      c) Blanker card      d) VLOM card
- 186) In WESTRACE EI, VSEV means ----- ( )  
 a) Virtual serial emergency voltage      b) Vital serial enable voltage  
 c) Virtual serial enable voltage      d) Vital serial emergency voltage
- 187) In WESTRACE EI, VSEV voltage is meant for ----- ( )  
 a) OPCR energization      b) Hot standby synchronization  
 c) Warm standby      d) Stand alone working
- 188) In WESTRACE EI, VSEV voltage is ----- ( )  
 a) 5v DC      b) 12v DC      c) 24v DC      d) 50v DC
- 189) In WESTRACE EI, the ----- is provided as mini mother board for VLM & NCDM ( )  
 a) UHVBC      b) UHVLM      c) UHNCDM      d) UHPSU
- 190) In WESTRACE EI, One PSU can be connected to Max ----- Housings. ( )  
 a) 4      b) 3      c) 2      d) 1
- 191) Max ----- No of I/O modules can be accommodated in an WESTRACE ( )  
 a) 16      b) 26      c) 14      d) 12
- 192) The output voltage of VROM is ----- in Westrace EI. ( )  
 a) 5v DC      b) 12v DC      c) 24v DC      d) 50v DC
- 193) ----- voltage relays used as Vital O/P relays in the WESTRACE EI ( )  
 a) Q Series 50v      b) Q Series 12v      c) K-50 60v      d) Q series 24v
- 194) ----- voltage relays used as Vital I/P relays in the WESTRACE EI ( )  
 a) Q Series 50v      b) Q Series 12v      c) K-50 60v      d) Q series 24v
- 195) Input range of PSU in WESTRACE EI is ----- ( )  
 a) 10-18v DC      b) 15-25V DC      c) 18-30V DC      d) 16.5-26.5V DC
- 196) PCGE is used for ----- generation in Westrace EI. ( )  
 a) User data log files      b) Application logic files  
 c) Station Layout files for VDU      d) Maintenance tool files
- 197) The interlocking circuits in the WESTRACE EI is called as ----- ( )  
 a) Rings      b) Rungs      c) Rongs      d) Rangs
- 198) ----- logic is used for writing WESTRACE Application program ( )  
 a) Ladder      b) Gate      c) Maxwell      d) Boolean
- 199) In WESTRACE EI, PFM is used as ----- ( )  
 a. SPD      b. LPD      c. MOV      d. ELD
- 200) CAT 5 cable is used for ----- communication in WESTRACE EI. ( )  
 a. Serial      b. OFC      c. Parallel      d. Ethernet

## ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
a	c	b	b	b	d	b	b	c	d
11	12	13	14	15	16	17	18	19	20
d	b	b	c	a	a	d	a	a	b
21	22	23	24	25	26	27	28	29	30
a	c	d	b	a	b	a	a	c	b
31	32	33	34	35	36	37	38	39	40
C	D	B	C	B	A	C	B	A	B
41	42	43	44	45	46	47	48	49	50
B	C	B	A	B	A	B	C	B	C
51	52	53	54	55	56	57	58	59	60
A	B	A	B	A	B	B	C	C	C
61	62	63	64	65	66	67	68	69	70
C	A	B	C	C	D	A	B	C	B
71	72	73	74	75	76	77	78	79	80
D	C	B	A	D	C	C	B	B	C
81	82	83	84	85	86	87	88	89	90
B	B	B	D	C	D	A	D	B	B
91	92	93	94	95	96	97	98	99	100
B	B	A	D	D	C	C	B	C	C
101	102	103	104	105	106	107	108	109	110
a	d	c	d	a	c	d	c	d	a
111	112	113	114	115	116	117	118	119	120
d	a	a	b	a	b	a	d	b	d
121	122	123	124	125	126	127	128	129	130
c	a	c	d	d	a	c	c	b	d
131	132	133	134	135	136	137	138	139	140
b	a	b	d	c	d	d	b	a	b
141	142	143	144	145	146	147	148	149	150
c	a	c	c	d	c	d	a	b	b
151	152	153	154	155	156	157	158	159	160
b	d	d	c	c	b	a	d	b	c
161	162	163	164	165	166	167	168	169	170
b	b	d	c	a	c	a	d	c	a
171	172	173	174	175	176	177	178	179	180
b	d	c	a	d	c	b	b	d	a
181	182	183	184	185	186	187	188	189	190
a	b	d	b	c	b	b	c	a	c
191	192	193	194	195	196	197	198	199	200
b	d	a	d	c	c	b	a	a	d





- 30) Signal blanking fault logic belongs to\_\_\_\_\_related from RDSO 2011 logics ( )  
 a) Safety                      b) Maintenance      c) Operational      d) none
- 31) Signal flying back to danger fault logic belongs to\_\_\_\_\_related from RDSO 2011 logics ( )  
 a) Safety                      b) Maintenance      c) Operational      d) none
- 32) Point loose packing fault logic belongs to \_ related from RDSO 2011 logics ( )  
 a) Safety                      b) Maintenance      c) Operational      d) none
- 33) Point burst fault logic belongs to\_\_\_\_\_related from RDSO 2011 logics ( )  
 a) Safety                      b) Maintenance      c) Operational      d) none
- 34) Clearing of signal without route locking fault logic belongs to\_\_\_\_\_related from RDSO 2011 logics ( )  
 a) Safety                      b) Maintenance      c) Operational      d) none
- 35) Passing of danger signal fault logic belongs to\_\_\_\_\_related from RDSO 2011 logics ( )  
 a) Safety                      b) Maintenance      c) Operational      d) none
- 36) Train passing blank signal fault logic belongs to\_\_\_\_\_related from RDSO 2011 logics ( )  
 a) Safety                      b) Maintenance      c) Operational      d) none
- 37) Late start of train fault logic belongs to\_\_\_\_\_related from RDSO 2011 logics ( )  
 a) Safety                      b) Maintenance      c) Operational      d) none
- 38) Late closure of LC gate fault logic belongs to\_\_\_\_\_related from RDSO 2011 logics ( )  
 a) Safety                      b) Maintenance      c) Operational      d) none
- 39) Premature operation of Double line block to TOL fault logic belongs to \_\_\_\_\_ related from RDSO 2011 logics ( )  
 a) Safety                      b) Maintenance      c) Operational      d) none
- 40) In Efftronics data logger\_\_\_\_\_is possible. ( )  
 a) On Line simulation                      b) OFF Line simulation  
 c) Both a & b                                      d) none
- 41) Data logger in various stations can be interconnected in a network by using ( )  
 a) Quad cable                                      b) Microwave  
 c) OFC    d) All the above
- 42) The DIP switches to set the unique Identification number to each data logger is provided in the\_\_\_\_\_card In Efftronics data logger ( )  
 a) DSU                      b) ASU                      c) CPU                      d) Front panel



- 43) Data logger acts like a “Black box” which can ( )  
 a) scan the events  
 b) store the events  
 c) Process the data for generating various user-friendly reports.  
 d) All the above
- 44) Data loggers can be connected in the network which help in monitoring ( )  
 a) PI                      b) RRI                      c) EI                      d) All
- 45) \_\_\_\_\_ number of digital inputs shall be connected to Efftronics RTU ( )  
 a) 16                      b) 48                      c) 24                      d) 64
- 46) \_\_\_\_\_ number of Analog inputs shall be connected to Efftronics RTU ( )  
 a) 16                      b) 64                      c) 84                      d) 96
- 47) The CMU is having the \_\_\_\_\_ software to retrieve data from all networked data logger ( )  
 a) Graphical User Interface (GUI)                      b) Database  
 c) Spreadsheet                      d) None
- 48) Data logger is suitable for working on \_\_\_\_\_ areas ( )  
 a) Non-RE area                      b) RE area                      c) DC electrified                      d) All
- 49) The working voltage of data logger is ( )  
 a) 230 V AC                      b) 110 V AC                      c) 110 V DC                      d) 24 V DC
- 50) In Efftronics data logger has the facility to log minimum \_\_\_\_\_ events with First-In First-Out (FIFO) logic ( )  
 a) 6 lakhs                      b) 8 lakhs                      c) 10 lakhs                      d) 12 lakhs

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
c	a	c	b	d	d	b	b	b	d
11	12	13	14	15	16	17	18	19	20
c	a	c	d	c	c	b	b	d	a
21	22	23	24	25	26	27	28	29	30
b	c	b	b	b	b	b	b	b	b
31	32	33	34	35	36	37	38	39	40
b	b	a	a	a	a	c	c	c	c
41	42	43	44	45	46	47	48	49	50
d	c	d	d	d	a	a	d	d	c



- a) Fully significant coding system      b) Semi significant coding system  
c) Non significant coding system      d) Color codification coding system
- 13) In Indian Railways, "A" category item represents what percentage of total consumption value (      )  
a) 50%                                      b) 60%                                      c) 70%                                      d) 90%
- 14) In "ABC" analysis, "A" category item represents (      )  
a) Low consumption value item                                      b) Important item  
c) High annual consumption value item                                      d) high cost item
- 15) In V- E- D analysis, V stands for (      )  
a) Vague items                                      b) Vital items  
c) Very important items                                      d) Very costly items
- 16) Buffer stock limit depend on \_\_\_\_\_ (      )  
a) ABC classification of the item  
b) VDE classification of the item  
c) Combination of ABC & VED classification of the item  
d) Stock & Non Stock classification of the item
- 17) Buffer stock is provided \_\_\_\_\_ (      )  
a) To meet unforeseen requirement  
b) To supply items to other users  
c) To make good, short fall due to theft, deterioration etc  
d) To have items out of stock
- 18) An item was not issued to any user for the past 24 months, but it is likely to be issued in the near. This item will be classified as (      )  
a) Dead surplus                                      b) Custody stores  
c) Movable surplus                                      d) imprest stores
- 19) An item was not issued to any user for the past 24 months, and is not likely to be utilized on any railway in next 2 years. (      )  
a) Dead surplus                                      b) Custody stores  
c) Movable surplus                                      d) imprest stores
- 20) PAC means (      )  
a) Proprietary Article certificate                                      b) Party Assurance certificate  
b) Private Article certificate                                      d) None of the above
- 21) Proprietary article certificate is issued for an item required to be purchased from (      )  
a) Single firm only                                      b) RDSO approved firms only  
c) Approved firm only                                      d) None of the above
- 22) Inactive items are those stock items, stock of which (c      )

- a) Is unserviceable  
 b) More than 3 months old  
 c) Not been issued to any user for the last 12 months  
 d) Is more than the requirement for the next 24 months
- 23) Similar nature of work will be issued by ( )  
 a) DRM    b) PCSTE    c) PFA    d) None of the above
- 24) No eligibility criteria is required for tenders up to Value of ( )  
 a) Upto 20 lakhs    b) Upto 40 lakhs    c) Upto 100 lakhs    d) Upto 50 lakhs
- 25) Value of Earnest Money Deposit to be paid by the tenderer along with tender document up to 1 crore tender ( )  
 a) 2% of tender value    b) 3% of tender value  
 c) 4% of tender Value    d) 5% of tender value
- 26) Performance guarantee to be paid by the Tenderer after awarding the work ( )  
 a) 10% of contract value    b) 20% of contract Value  
 c) 5% of contract value    d) 2% of contract Value
- 27) \_\_\_\_\_% of Security Deposit have to be collected from contractor through on going bills ( )  
 a) 10% of contract value    b) 20% of contract Value  
 c) 25% of contract value    d) 5% of contract Value
- 28) Normal notice period for calling open tenders ( )  
 a) 30 days    b) 21 days  
 c) 14 days    d) 45 days
- 29) Powers of Sr DSTE (JAG) for calling quotations duly dispensing tender without finance concurrence for safety works ( )  
 a) 5 Lakhs    b) 2 Lakhs  
 c) 10 Lakhs    d) 8 Lakhs
- 30) In how many days the tenderer has to pay PG without penal interest after issuing Letter of acceptance ( )  
 a) 21 days    b) 30 days  
 c) 45 days    d) 60 days
- 31) SSE who recorded the measurements in the Measurement Book is responsible for \_\_\_\_\_% check ( )  
 a) 25 %    b) 100%    c) 50%    d) 75%
- 32) RDSO inspection is required for the following material ( )  
 a) Relay Racks    b) Fuses & Fuse block    c) Hylam Sheet    d) None





- 13) States: (i) Maharashtra (ii) Gujarat (iii) Punjab  
 Union Territory: (i) Chandigarh (ii) Daman and Diu (iii) Dadar and Nagar Haveli ...  
 falls under Region ( )  
 a) A & B      b) B & C      c) A      d) B
- 14) States: (i) Karnataka (ii) Tamilnadu (iii) Kerala (iv) Andhra Pradesh (v) Telangana  
 (vi) Odisha (vii) West Bengal (viii) Goa (ix) Jammu and Kashmir (x) Assam (xi)  
 Nagaland (xii) Meghalaya (xiii) Arunachal Pradesh (xiv) Sikkim (xv) Tripura (xvi)  
 Mizoram (xvii) Manipur,  
 Union Territory: (i) Pondicherry (ii) Lakshadweep...falls under Region ( )  
 a) B      b) C      c) A & B      d) B & C
- 15) Which Ministry takes important decisions pertaining to Official Language ( )  
 a) Railways      b) Home  
 c) Human Resource      d) Culture
- 16) In which year the post of Hindi Assistant was created in Railway Board in  
 compliance of President's order ( )  
 a) 1947      b) 1950      c) 1952      d) 1953
- 17) Who was the Railway Minister when the Hindi Translation of Railway Budget was  
 prepared in the year 1956 ( )  
 a) Shri Lal Bahadur Shastri      b) Shri Jawaharlal Nehru  
 c) Smt Indira Gandhi      d) Shri Gulzarilal Nanda
- 18) Who is the Chairman of Central Hindi Samiti (Committee) ( )  
 a) President      b) Home minister  
 c) External affairs minister      d) Prime Minister
- 19) The Central Hindi Samiti (Committee) comes under which Ministry ( )  
 a) External affairs      b) Railways      c) Home      d) Culture
- 20) After Independence, initially which Ministry was entrusted the duty of training Central  
 Government Staff in Hindi ( )  
 a) external affairs      b) Education      c) home      d) Culture
- 21) How many members are there in the Parliamentary Committee on Official  
 Language ( )  
 a) 10      b) 20      c) 30      d) 35

- 22) How many Lok Sabha members are there in the Parliamentary Committee on Official Language ( )  
 a) 10                      b) 20                      c) 30                      d) 32
- 23) How many Rajya Sabha members are there in the Parliamentary Committee on Official Language ( )  
 a) 5                      b) 7                      c) 8                      d) 10
- 24) At present, how many Sub-Committees are there in the Parliamentary Committee on Official Language ( )  
 a) 3                      b) 7                      c) 8                      d) 10
- 25) Which Sub-Committee of Parliamentary Committee on Official Language inspects the offices of Railway Ministry ( )  
 a) 1<sup>st</sup>                      b) 2<sup>nd</sup>                      c) 3<sup>rd</sup>                      d) none
- 26) What is the periodicity of the meetings of Official Language Implementation Committee is once in ( )  
 a) 1                      b) 2                      c) 3                      d) 6
- 27) Which Ministry prepares Annual Programs on Official Language ( )  
 a) Railways                      b) Home                      c) Defense                      d) Broad casting
- 28) The Question Papers of departmental examination must be provided in which language ( )  
 a) Hindi                      b) Regional                      c) no such norms                      d) Hindi & English
- 29) How many Hindi courses are prescribed for Central Govt. employees ( )  
 a) Prabodh                      b) Praveen                      c) Pragya and Parangat                      d) All
- 30) Which is the elementary Hindi course prescribed for Central Govt. employees( )  
 a) Pragya                      b) Praveen                      c) Prabodh                      d) Parangat
- 31) Which is the final Hindi course prescribed for Central Govt. employees ( )  
 a) Pragya                      b) Praveen                      c) Prabodh                      d) Parangat
- 32) What are all the training facilities available to a Central Govt. Employee to get trained in these Hindi courses ( )  
 a) All                      b) Regular                      c) Intensive                      d) Correspondence & Private
- 33) What is the duration of each Hindi course? (Except Intensive Training) ( )  
 a) 2 months                      b) 3 months                      c) 5 months                      d) 6 months



- 34) How many times Hindi examinations (except Intensive Training) are conducted in a year ( )  
 a) 1                                      b) 2                                      c) 3                                      d) 4
- 35) What are all the months in which Hindi examinations are usually conducted ( )  
 a) April & September                                      b) May & October  
 c) May & November                                      d) June & December
- 36) In how many working days Prabodh course is conducted under Intensive Training ( )  
 a) 20                                      b) 25                                      c) 30                                      d) 35
- 37) In how many Working days Praveen course is conducted under Intensive Training ( )  
 a) 20                                      b) 25                                      c) 30                                      d) 35
- 38) In how many working days Pragya course is conducted under Intensive Training ( )  
 a) 7                                      b) 10                                      c) 15                                      d) 20
- 39) When will an employee become eligible for Cash Award after passing Hindi Examinations ( )  
 a) get above 35% in written                                      b) get above 45% in written  
 c) get above 55% in written                                      d) get above 60% in written
- 40) What is the amount of Cash Award for Passing Hindi Typing with 90% or more but less than 95% of marks ( )  
 a) Rs 400                                      b) ) Rs 600                                      c) Rs 800                                      d) Rs 1200
- 41) What are all the incentives given for passing Hindi Examinations ( )  
 a) Cash Award                                      b) Lumpsum Award & Personal  
 c) a & b                                      d) None
- 42) What is the amount of Cash Award for Passing Prabodh with 55% or more but less than 60% of marks ( )  
 a) Rs 400                                      b) Rs 450                                      c) Rs 500                                      d) Rs 550
- 43) What is the amount of Cash Award for Passing Prabodh with 60% or more but less than 70% of marks ( )  
 a) Rs 750                                      b) Rs 800                                      c) Rs 850                                      d) Rs 900

- 44) What is the amount of Cash Award for Passing Prabodh with 70% or more marks ( )  
 a) Rs 1200            b) Rs 1400            c) Rs 1600            d) Rs 1800
- 45) What is the amount of Cash Award for Passing Praveen with 55% or more but less than 60% of marks ( )  
 a) Rs 200                            b) Rs 400                            c) Rs 600                            d) Rs 800
- 46) What is the amount of Cash Award for Passing Praveen with 60% or more but less than 70% of marks ( )  
 a) Rs 1200                            b) Rs 1300                            c) Rs 1500                            d) Rs 1700
- 47) What is the amount of Cash Award for Passing Praveen with 70% or more marks ( )  
 a) Rs 1200                            b) Rs 1400                            c) Rs 1600                            d) Rs 1800
- 48) What is the amount of Cash Award for Passing Pragya with 55% or more but less than 60% of marks ( )  
 a) Rs 400                            b) Rs 600                            c) Rs 800                            d) Rs 1200
- 49) What is the amount of Cash Award for Passing Pragya with 60% or more but less than 70% of marks ( )  
 a) Rs 1400                            b) Rs 1600                            c) Rs 1800                            d) Rs 2400
- 50) What is the amount of Cash Award for Passing Pragya with 70% or more marks ( )  
 a) Rs 2400                            b) Rs 1800                            c) Rs 1600                            d) Rs 1200

ANSWERS KEY

1	2	3	4	5	6	7	8	9	10
d	c	b	a	c	c	d	a	b	d
11	12	13	14	15	16	17	18	19	20
a	c	d	b	b	c	a	d	c	b
21	22	23	24	25	26	27	28	29	30
c	b	d	a	b	c	b	d	d	c
31	32	33	34	35	36	37	38	39	40
a	a	d	b	c	b	a	c	c	c
41	42	43	44	45	46	47	48	49	50
c	a	b	c	d	a	d	c	b	a