

SOUTH CENTRAL RAILWAY
SECUNDERABAD DIVISION

SYLLABUS FOR PROMOTION AS JE IN TRS ORGANISATION through LDCE Quota.

PART-A

A) **Basics of electricity**

- 1) Study of Electricity, Ohms Law, Magnetism, Electromagnetic induction, Flemings R.H. Rule, L.H. Rule, Lenz's Law, self inductance, Mutual inductance, Study of AC circuits i.e., RL, RC, RLC Circuits, Series Resonance, Parallel resonance.
- 2) Measurements of Resistance, current voltage, power study of various types of meters and equipments used, Megger, diode tester, ammeter, Voltmeter etc., uses of shunts, multipliers.

B) **Importance of Earthing and Earth testing procedure:**

Why earthing is to be done, PIPE earthing, Plate earthing, Maintenance free earthing, Study of Earth testing procedure, insulation test for various equipments and testing of insulators.

- C) **Electrical Safety and ACTS and Rules.** 1. Electricity act and safe rules and Shock treatment, first aid and use of Fire Extinguishers.

D) SIMPLE ARITHMETIC CALCULATIONS

- E) APTITUDE FOR THE TRADE APPLIED, KNOWLEDGE OF ELEMENTARY PRINCIPLES OF THE TRADE AND TOOLS USED IN TRADE.

PART-B

A) **3-Phase Locomotives (WAP-7, WAG-9)**

1. 3phase induction Motors as Traction Motors: Study of Characteristics, use of 3phase induction motors for traction duty. Study of Traction Motor used in A.C. Locomotives WAP7 & WAG-9 Maintenance, repairs, overhaul of Traction motors of 3Phase Locomotives (WAG-9, WAP-7).
2. Study of 3Phase Locomotive circuits i.e., Power circuits and control circuits, parameters of A.C. Circuits, Simple calculations, study of power supply arrangements of A.C. traction(3phase Locomotives).
3. Study of current collection in 3Phase Locomotives, study of roof equipments of A.C. Loco.
4. Study of 3phase Locomotive Transformers, overhaul and maintenance of Transformers, Auto-Transformers, conditions for parallel operation of transformer, Maintenance and overhauling tests to be conducted on the transformer, testing of transformer.
5. Study of Auxiliary converter circuits and components and Auxiliary power supply and load sharing between BURs during normal condition and during isolation of one BUR.
6. Study of Transformer cooling circuit and function of TFP MPH.
7. Study of SR coolant circulation and function of SRMPH.
8. Machine room layout of 3phase locomotives. Locations of various equipment in Machine room.
9. Study of various types of contractors and relays, study of relays and contractors used in the 3phase Locomotives.
10. Study of batteries in 3phase locomotives, commissioning (initial charging), maintenance and reclamation and battery charging procedures.
11. Safe working on the 3phase locomotive; precautions to be taken, Fire preventive measures in the locomotive and study of fire fighting.
12. Study of circuit, analysis of WAG-9 Locomotives i.e., study of circuits, cabling Index and other drawings

13. Protective functions in three phase locomotive(ABB document 3EHP 541526), working of VCD, Failure mode operation, Inching mode operation, Constant speed control, Traction Interlock, SR Interlock and Indication of faults using BPFA & LSFI
14. Study of WAG-9 Bogie, wheel arrangements, suspension arrangements and all mechanical features like elements of Vibration, Oscillation, Damping devices, Elasticity i.e., Springs and dampers etc.
15. Study of Sander gear and Brake rigging, various types of brake systems in 3phase Loco.
16. Different lubricants used in WAP 7/ WAG9 locomotives
17. Study of Pneumatic circuitry of WAG-9, Study of various Pneumatic Valves, braking system (E-70 System and CCB 2.0 – PTDC mode of working in CCB 2.0 locomotive. Different type of brakes available in WAG9 and WAP7 locomotives.
18. Study of maintenance schedules for various equipment in the 3phase Locomotive, its periodicity.
19. Study of 3phase Locomotives, testing, engine fitness and troubleshooting procedure.
20. RDSO Modification and SMIs implementation and maintenance of various records for 3phase Locomotives.
21. Study of Electronic devices i.e., IGBT and GTOs as control switches in power circuitry and auxiliary circuitry of 3phase Locomotives.
22. New Technologies: RTIS, RMS, TPWS, CAB-AC, Push-pull operation, MU-operation of WAG9, CVVRS.
23. Different types of contactors used in 3 phase locomotives126.7/1, 126.7/2, 126.6, 126, 218, 130.1 & 136.4
24. Frequent DDS messages –S/R interlock auto brake, S/R interlock loco brake, Error tachometer generator, S/R interlock MR low, ACP/train part, Brake electronic failed, 8.1stuck on/off, 8.41 stuck off/on, Low pressure Pan.
25. Working of harmonic filter and importance of 8.1, 8.2 & 8.41.
26. Various type of bearing used in 3 phase locomotives, minimum requirement of air flow levels permitted as per RDSO SM1 of 3 phase locomotives,
27. Loco CAB changing procedure with E 70 & CCB.
28. Safety items of electric locomotives.
29. Trouble shooting in cooling mode
30. Various types of transformers used in 3 phase locomotives.
31. Locomotive dimensions
32. Various type of SPMs and their issues
33. Primary, secondary, vertical and lateral clearances, wheel wear management,
34. Working of DBC & EBV.
35. Different types of VCU's
36. Hotel load converter (HOG).
37. S.C. Railway 76 point trouble shooting guide.
38. Various IGBT propulsion systems homed at ELS/LGD and Failure of various of auxiliary motors in three phase locomotives.

PART –C

1. Railway service conduct Rules, Pass Rules, D&A Rules, Hours of employment regulations, payment of wages Act, WC Act.
2. Procurement of stores -stocked items and non-stocked items - Imprest stores
Disposal of unserviceable stores - stock verification
3. Rules and regulations about Official Language i.e., Hindi as Official Language

PART-A(Basics of Electrical engineering)**a) Basic Electronics:**

(1) The reverse current in a diode is of the order of

Options:[a] kA [b] mA [c] μ A [d] Zero

Answers: 1. Options B and C 2. Option C only 3. Option D only 4. Option A and D only Ans: 2

(2) The forward voltage drop across a diode is about....

[a] 2.5V [b] 3V [c] 10V [d] 0.7V Ans: D

(3) A semiconductor diode is used as

Options:[a] An amplifier [b] A Rectifier [c] An oscillator [d] A voltage regulator Answers:

1. Options A and C 2. Option B only 3. A, B, C and D 4. Option D only Ans: 2

(4) A semiconductor diode has

[a] One PN junction [b] Two PN junction [c] Three PN junction [d] Four PN junction Ans: A

(5) A semiconductor diode has forward resistance of order of ohms(Ω)

[a] kohms(K Ω) [b] 0.1 to 0.5 ohms [c] Mega ohms [d] milli ohms

Answers: 1. Option D only 2. Option B only 3. Options A, B, C and D 4. None of the above Ans: 2

(6) If the arrow of diode symbol is positive with respect to bar, then the diode is biased

(7) [a] Forward [b] Reverse [c] Either forward or reverse [d] None of the above Ans: A

(8) The leakage current in a diode is due to

Options:[a] Minority Carriers [b] Majority Carriers [c] Junction Capacitance [d] None of the above

Answers: 1. Options A, B, C 2. Option B only 3. Options A and B only 4. Option A only Ans: 4

(8) The DC resistance of a diode is its AC resistance

[a] Same as [b] More than [c] Less than [d] None of the above Ans:

C

(9) An ideal diode is one which behaves as a perfect when forward biased

[a] Conductor [b] Insulator [c] Resistance material [d] None of the above

Ans: A

(10) If the temperature of the diode increases, then leakage current....

[a] Remains same [b] Decreases [c] Increases [d] Becomes zero

Ans: C

B) ELECTRICAL ENGINEERING BASICS OBJECTIVE QUESTIONS WITH ANSWERS

[1] Electrostatics is a branch of electricity concerned with

(a) Energy flowing across a gap between conductors (b) Charges at rest (c) Charges in motion

(d) Energy in the form of charges

Answer: B

[2] Four 2 F capacitors are connected in series. The equivalent capacitance is

(a) 8 F (b) 0.5 F (c) 2 F (d) 6 F

Ans: B

[3] State which of the following is false.

The capacitance of a capacitor

- (a) Is proportional to the cross-sectional area of the plates
- (b) Is proportional to the distance between the plates
- (c) Depends on the number of plates
- (d) Is proportional to the relative permittivity of the dielectric Ans: B

[4] The capacitance of a capacitor is the ratio

- (a) Charge to potential difference between plates
- (b) Potential difference-between plates to plate spacing
- (c) Potential difference-between plates to thickness of dielectric
- (d) Potential difference-between plates to charge

Ans:B

[5] Which of the following statement is false?

- (a) An air capacitor is normally a variable type
- (b) A paper capacitor generally has a shorter service life than most other types of capacitor
- (c) An electrolytic capacitor must be used only on a.c. supplies
- (d) Plastic capacitors generally operate satisfactorily under conditions of high temperature Ans:A

[6] The potential difference-across a $10\mu\text{F}$ capacitor to charge it with $10\mu\text{C}$ is

- (a) 10V (b) 1 kV (c) 1V (d) 10V Ans: C

[7] The energy stored in a $10\mu\text{F}$ capacitor when charged to 500V is

- (a) 1.25 mJ (b) 0.025 J (c) 1.25 J (d) 1.25 C Ans: C

[8] The capacitance of a variable air capacitor is at maximum when

- (a) The movable plates half overlap the fixed plates
- (b) The movable plates are most widely separated from the fixed plates
- (c) Both sets of plates are exactly meshed
- (d) The movable plates are closer to one side of the fixed plate than to the other

Ans: C

[9] The unit of magnetic flux density is the:

- (a) Weber (b) Weber per metre (c) Ampere per metre (d) Tesla

Ans: D

[10] The charge on a 1pF capacitor when the voltage applied to it is 10 kV is

- (a) $100\mu\text{C}$ (b) $0.1\mu\text{C}$ (c) $0.01\mu\text{C}$ (d) $0.001\mu\text{C}$ Ans: C

[11] Four 2F capacitors are connected in parallel. The equivalent capacitance is (a)

- 8 F (b) 0.5F (c) 2F (d) 6F Ans: A

[12] In a series a.c. circuit the voltage across a pure inductance is 12V and the voltage across a pure resistance is 5V. The supply voltage is (a) 13V (b) 17V (c) 7V (d) 2.4V Ans: A

[13] Inductive reactance results in a current that

- (a) Leads the voltage by 90° (b) Is in phase with the voltage (c) Leads the voltage by 45° (d) Lags the voltage by 90°

Ans: D

[14] A $10\ \Omega$ resistor is connected in parallel with a $15\ \Omega$ resistor and the combination in series with a $12\ \Omega$ resistor. The equivalent resistance of the circuit is: (a) $37\ \Omega$ (b) $18\ \Omega$ (c) $27\ \Omega$ (d) $4\ \Omega$ Ans: B

[15] The equivalent resistance when a resistor of $(1/3)\ \Omega$ is connected in parallel with a $(1/4)\ \Omega$ resistance is: (a) $1/7\ \Omega$ (b) $7\ \Omega$ (c) $1/12\ \Omega$ (d) $3/4\ \Omega$ Ans: A

Electrical Safety:

Multiple Choice (circle the correct answer)

1. A person qualified to perform electrical work must possess
 - a. Skills/techniques to distinguish live parts from other parts of electrical equipment.
 - b. Skills and techniques to determine the nominal voltage of exposed live parts.--
 - c. Knowledge on the use of PPE, insulating and shielding materials, and insulated tools.
 - d. All of the above.
2. Electrical injuries are commonly caused by:
 - a. Unsafe equipment or installations
 - b. An unsafe environment
 - c. Unsafe work practices.
 - d. All of the above
3. Current flow from hand to hand is called
 - a. Step potential
 - b. Touch potential
 - c. Amperage
 - d. None of the above.

True or False

4. Conductors offer little resistance to the flow of electric current.
5. Cord and plug equipment should have a three prong plug or be double insulated.
6. Only authorized employees are permitted to work on electrical systems and equipment.
7. Electrical shock can cause damage to tissue, muscle, and internal organs.
8. The longer a person is exposed to an electrical shock (current), the greater the risk of serious injury.
9. Grounding conductors are usually black in color.
10. Ground fault circuit interrupters compare the amount of current going into electrical equipment and the amount of equipment returning.--

Answers

1. D
2. D
3. B
4. T
5. T
6. T
7. T
8. T
9. F (Green)
10. T

Numerical Problems

What would come in the place of the question mark (?) in the following questions ?

1. $15\frac{1}{3} + 3\frac{3}{4}$ of 425 + ? = 400
(1) $66\frac{1}{3}$ (2) $67\frac{2}{3}$ (3) $66\frac{2}{3}$ (4) None of these
2. $140\sqrt{?} + 315 = 1015$ (1) 5 (2) 16 (3) 25 (4) 36
3. $(12.19 - 0.22) + 0.03 = ?$ (1) 0.399 (2) 39.9 (3) 3.99 (4) None of these
4. 45% of ? + 30% of 90 = 30% of 210 (1) 120 (2) 80 (3) 60 (4) 90
5. $88044 \div 44 + 17 \times 23 = ?$ (1) 2392 (2) 2291 (3) 592 (4) 412
6. $\frac{4}{5} + 2\frac{1}{5} + 2\frac{2}{3} = ?$ (1) $6\frac{1}{5}$ (2) $6\frac{1}{3}$ (3) $6\frac{1}{15}$ (4) None of these
7. $\frac{(11)^2 - (4)^2 \times 2}{4 \times 2} = ?$
(1) 11 (2) $1\frac{1}{4}$ (3) $11\frac{1}{8}$ (4) 121
8. $\frac{9}{4} - \frac{?}{4} = 2$ (1) 1 (2) 4 (3) 8 (4) 18
9. $40.07 \times 1.43 = ?$ (1) 57.31 (2) 57.301 (3) 5.7301 (4) None of these
10. $852.2109 + 106.78 - 59.157 = ?$ (1) 899.8339 (2) 889.8339 (3) 899.9833 (4) None of these
11. In the following series, a wrong number is given. Find out that number. 2, 3, 6, 15, 45, 202.5, 630 (1) 3 (2) 6 (3) 15 (4) 202.5
12. Recurring part of non-terminating recurring decimal is called _____
13. The number of digits in the recurring part is called _____
14. In $\frac{1}{3} = 0.3$ Period = ? Periodicity = ?
15. $\sqrt[3]{324} = ?$
(a) 18 (b) 14 (c) 28 (d) 38
16. $\sqrt{3} = ?$
(a) 1.732 (b) 1.6 (c) 4 (d) 3

17. Find value of Z, using formula $X^2 + Y^2 = Z^2$, if $X=4$ & $Y=3$
 (a) 4 (b) 5 (c) 3 (d) 8
18. Following is a set of Natural Number.
 (1) $N = (1, 2, 3, \dots)$ (2) $N = (0, 1, 2, 3, \dots)$ (3) $N = (-1, -2, -3, \dots)$ (4) None
19. $\sqrt{2}$ is a
 1) Natural Number (2) Rational Number (3) Irrational Number (4) Whole Number
20. 4:9 can be written as 2:3
 (a) True (b) False
21. If price of 3 books is 12, then price of 6 books should be
 (a) 24 (b) 36 (c) 30 (d) 20
22. If purchasing cost is Rs.200/- and of selling price is Rs.220/-, then profit is
 (a) 10% (b) 30% (c) 20% (d) 15%
23. If one keeps some money in bank, then which one of the following give him maximum Profit?
 (a) Simple Interest (b) Compound Interest (c) Both (d) None
24. Which one is correct?
 (a) Distance = Speed $\times$ Time (b) Distance = **Speed/Time** (c) Distance=Time/speed
 (d) None
25. Perimeter of a square with its side 'a' units
 (a) 3a (b) a (c) 5a (d) 4a
26. LCM stands for
 (a) Low cost maintenance (b) Least Common Multiple (c) Least cost multiple (d) None
27. GCM Stands for
 (a) Greatest Cost Multiple (b) Greatest Cost Minus (c) Greatest Common Multiple (d) None
28. $3 + (4(5-1)) - 4 =$
 (a) 15 (b) 16 (c) 0 (d) 1
29. $8 + (4(3 \times 4 \div 2)) + 1 =$
 (a) 30 (b) 20 (c) 23 (d) 33
30. The angle between two sides of a square is
 (a) 10 Deg (b) 45 Deg (c) 90 Deg (d) None
31. The two parallel line cut each other at
 (a) Crossing point (b) Inversion point (c) Infinity (d) None
32. $3 + (2 + 4(8 - 3 \times (6 \div 3)) + 1) \div 5 =$
 (a) 5 (b) 55 (c) 60 (d) 58
33. Angle between two parallel line is
 (a) 90 Deg (b) 45 deg (c) 0 (d) None
34. $(\sqrt{36} + \sqrt{25} + \sqrt{49}) - 8 =$
 (a) 12 (b) 14 (c) 10 (d) 16
35. If $x = 4$ & $y = 5$, the value of $(x+y)^2 = ?$
 (a) 99 (b) 81 (c) 45 (d) 54

Answers for Numerical problems

1. 4
2. 3
3. 4
4. 2
5. 1
6. 4
7. 3
8. 1
9. 4
10. 1
11. 4
12. Period
13. periodicity
14. 3 & 1
15. a

16. a
17. b
18. 1
19. 3
20. b
21. a
22. a
23. b
24. a
25. d
26. b
27. c
28. a
29. d
30. c
31. c
32. d
33. c
34. c
35. b

General Knowledge

Note: Question on current affair will be related to latest news.

1. What is the minimum age laid down for a person to seek election to the Lok Sabha?
(1) 18 years (2) 21 years (3) 25 years (4) 30 Years
2. The group of people benefited by inflation is
(1) creditors (2) debtors (3) salaried class (4) wage earners
3. First 'talkie' feature film made and shown in India (1) Alam Ara (2) Raja Harischandra (3) Pundalik (4) Shakuntala
4. In which of the following do red blood cells originate?
(1) Bone marrow (2) Brain (4) Ligaments (4) Muscles
5. "Binary codes" as used in computers are codes made up of which of the following two numbers? (1) 0 and 9 (2) 1 and 3 (3) 0 and 1 (4) 9 and 1
6. Which of the following is NOT a computer language? (1) IBM (2) PASCAL (3) COBOL (4) FORTRAN
7. If the reading of the barometer starts falling rapidly all of a sudden, the indication should be that the weather going to be
(1) very hot (2) very stormy (3) fully of cold waves (4) calm & quiet, but hot
8. Which of the following payment instruments introduced by the banks is known as plastic Money?
(1) Bearer cheques (2) Credit cards (3) Demand drafts (4) Gift cheques
9. Jaspal Rana has distinguished himself in which one of the following sports events?
(1) Swimming (2) Weight lifting (3) Shooting (4) Archery
10. The Central Rice Research Institute is located in which of the following cities? (1) Calcutta (2) Hyderabad (3) Chennai (4) Cuttak
11. Which among the following is a classic dance from Kerala? (1) Kathak (2) Kathalaki (3) Bharata Natyam (4) Kuchipudi
12. Which of the following is the Headquarters of the World Bank?
(1) Washington (2) Hague (3) Paris (4) London
13. India-2020 – a vision for the new millennium is a new book which has attracted readers Attention. Who wrote this book?
(1) Kushwant Singh (2) R.K.Laxman (3) APJ Abdul Kalam & Y.S.Rajan (4) V.S.Naipaul
14. Kalpana Chawla – one fame as (1) Musician (2) Hockey player (3) Scientist (4) Astronaut
15. Which of the following is the best conductor of electricity? (1) Copper (2) Silver (3) Iron (4) Steel
16. Which of the following is not a name associated with Computer?
(1) Pentium (2) HCL (3) Wipro (4) IMAI

17. Which of the following gases used for the purification of water?
(1) Oxygen (2) Ammonia (3) Chlorin (4) Carbon Di Oxide
18. Which of the following does not come as a product of vehicular pollution? (1)
Sulphur dioxide (2) Nitrogen oxide (3) Hydro carbons (4) Hydrogen peroxide
19. Which of the following countries has the 2nd largest rail net work in the world? (1)
India (2) USA (3) Russia (4) China
20. Citrus fruits are considered a rich source of which of the following vitamins? (1)
Vitamin-A (2) Vitamin-B (3) Vitamin-C (4) Vitamin-D
21. Arjun awards are given for excellence in which of the following fields? (1)
Arts (2) Sports (3) Social Service (4) Economics
22. The term of Off-SIDE is related to the game of (1) Basket
ball (2) Foot ball (3) Volley ball (4) Badminton
23. Saranath, a tourist spot which contains the ruins of Buddhist temple is located
Near which place? (1) Bhopal (2) Varanasi (3) Patna (4) Allahabad
24. Bismillah Khan is known for which of the following instruments?
(1) Tabala (2) Flute (3) Shehnai (4) Violin
25. The national fire service college is situated in which city?
(1) Chandigarh (2) Bhopal (3) Faridabad (4) None of these
26. The term biopsy is associated with which of the following field of study? (1)
Aeronautics (2) Social Science (3) Econometrics (4) Medical Science
27. "APSARA" is the name of the India's first (1) Nuclear Reactor (2) Helicopter
(3) Ground battle tank (4) Railway Locomotive
28. Numismatics is the study of (1) Insects (2)
Numbers (3) Stamps (4) Coins
29. "Megabytes" is the unit of measuring which of the following? (1) Weight of
valuable metals like Gold & Silver (2) Intensity of Earthquakes (3) Density of
population (4) Memory capacity of Computer
30. Which of the following explains that windows 2000 is
(1) Operating system (2) New Word Processor (3)
Financial package (4) New Computer language
31. Indian born scientist "Subramanian Chandra Sekhar" had won noble prize for his in the
area of (1) Nuclear medicine (2) Bio chemistry (3) Astro Physics (4) Genetic Engg.
32. Which of the following gases makes the major preparation of Air? (1)
Carbon dioxide (2) Argon (3) Nitrogen (4) Oxygen
33. Which of the following part of sun light makes a solar cooker hot? (1)
Ultraviolet (2) Red light rays (3) Infra red (4) Cosmic rays

34. Central Building Research Institute is located at
(1) Durga Pur (2) Roorkee (3) Nagapur (4) Bangalore
35. The capital of Assam is (1) Shillang (2) Agartala
(3) Ita Nagar (4) Dispur
36. The Chronological order of the three dynasties which ruled India is (1) Slave, Khilji, Tughlaq (2) Tughlaq, Slave, Khilji (3) Khilji, Tughlaq, Slave (4) Slave, Tughlaq, Khilji
37. The Autobiographical work "THE TUNNEL OF TIME" was written by
(1) R.K.Narayan (2) R.K.Lakshman (3) Morarji Desai (4) Nelson Mandela
38. Which of the following statements about Abraham Lincoln is incorrect?
(a) He abolished slavery in the BS
(b) He was 16th President of US © He was assassinated in 1865 (d) He was the first President of the US
39. The first navigator to sail round the world was (a) Marco Polo (b) Columbus (c) Amundsen (d) Magellan
40. Who was the first woman President of the Indian National Congress? (a) Annie Besant (b) Sarojini Naidu (c) Vijayalakshmi Pandit (d) None of these
41. In which of the following fields did Tenzing Norgay distinguish himself? (a) Boxing (b) Cycling (c) Mountaineering (d) Hockey
42. Aryabhatta was India's renowned (a) Poet (b) Physicist (c) Mathematician (d) Medical Practitioner
43. The variation in duration of days and nights at a place is mainly because of
(a) the spherical shape of earth
(b) inclination of earth's axis towards orbit © the revolution of earth (d) none of these
44. Winds generally blow from areas of
(a) Low Pressure to those of high pressure
(b) High Pressure to those of low pressure © High Pressure to those of moderate pressure (d) Low Pressure to those of moderate pressure
45. Earthquakes & Volcanoes are associated with (a) Folded & Faulted regions (b) deep sea plains (c) plateau regions (d) coastal region
46. Days & Nights are caused by (a) Earth's rotation on its axis (b) Earth's revolution around Sun (c) Change in Sun's Temperature (d) Inclination of the earth's axis
47. Which of the following is the nearest to the earth?
(a) Sun (b) Mercury (c) Moon (d) None of these

48. Which planet is known as “ Evening Star”? (a) Saturn (b) Mercury (c) Venus (d) Jupiter
49. Ramanuja preached (a) Satya (b) Ahimsa (c) Gyana (d) Bhakti
50. The capital of India was shifted from Calcutta to Delhi in (a) 1910 (b) 1911 (c) 1912 (d) 1913
51. The first Muslim ruler of India was (a) Mahmud Ghazni (b) Muhammad Ghori (c) Babar (d) Muhammad Bin Tughlaq
52. Nadir Shah invaded India in (a) 1705 (b) 1739 (c) 1801 (d) 1839
53. Kalinga war changed the life of (a) Chandragupta Maurya (b) Ashoka the Great (c) Lord Buddha (d) Akbar
54. Who was the Guru of Swami Vivekananda? (a) Dayanand Saraswati (b) Raja Raj Mohan Roy (c) Rama Krishna Paramahansa (d) None of these
55. Bhakti Movement aimed at
(a) forming a correlation between Islam and Hinduism
(b) building of temples © introducing reform in the Hindu religion (d) None of these
56. Gaya is associated with Lord Buddha, where he (a) was born (b) attained enlightenment (c) died (d) delivered the first sermon
57. Who, of the following encouraged remarriage of the widows most?
(a) Ahilya Bai (b) Raja Ram Mohan Roy (c) Gandhiji (d) None of them
58. Which of the following places was known as centre of learning in ancient India?
(a) Nalanda (b) Ujjain (c) Allahabad (d) None of these
59. Who was the first woman ruler of India? (a) Noor Jehan (b) Razia Sultan (c) Chand Bibi (d) Mumtaz Mahal
60. The Tenth Schedule of the Constitution of India relates to
(a) National Languages of India
(b) Administration of Scheduled and tribal areas
© judicial Review (d) Anti – defection law

Answers to General Knowledge

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

Three phase Locomotives**Choose the right answer.**

1. Current is collected from OHE to A.C.loco through ()
(a) Transformer (b) circuit breaker (c) Pantograph (d) servo motor
Ans: (C)
2. Which one of the following is not a safety item ()
(a) ACP Unit (b) Hand brake (c) Head Light (d) Corridor Light
Ans: (d)
3. Wheel slipping occurs ()
(a) due to Down gradient (b) due to poor brake power (c) if applied tractive effort is more than adhesive weight of loco (d) none of the above
Ans: (c)
4. Hydrometer is used for measuring ()
(a) level of electrolyte in BA (b) total charge stored in BS (c) specific gravity of electrolyte
(d) terminal voltage of BA
Ans: (C)
5. Maximum air pressure in electric loco brake cylinder with A9 application with cast iron brake blocks is ()
(a) 2.5 kg/cm² (b) 3.5 kg/cm² (c) 2. kg/cm² (d) 5. kg/cm²
Ans: (A)
6. The requisition No. for a N.S.item is ()
(a) S 1313 (b) S 1302 (c) S 1315 (d) S 1305
Ans: (B)
7. Maximum Tractive effort of a loco is the ()
(a) maximum power developed by the loco (b) maximum torque developed by the loco at 5KMPH
(c) maximum starting torque developed by the loco without wheel slipping
(d) None is correct
Ans: (C)
8. AFL circuit works in case of ()
(a) train parting (b) chain pulling (c) brake application (d) both (a) (b)
Ans: (D)
9. The insulation class of an auxiliary motor is ()
(a) H Class (b) B Class (c) F Class (d) C Class
Ans: (C)
10. Panto raising time is adjusted between ()
(a) 6 to 10sec. (b) 5 to 1sec. (c) 5 to 8 sec. (d) None
Ans: (A)
11. DP Test is done to detect ()
(a) Acetylene content in oil (b) Methane level (c) inside void in axle (d) surface crack
Ans: (D)
12. Noise / vibration level of bearing is measured in ()
(a) DB (b) dB (c) GB (d) BD
Ans: (B)
13. Minor penalties can be imposed to withhold ()
(a) 2 sets of passes (b) 2 increments for one year (c) promotion for one year (d) all the above
Ans: (D)

14. Opening of the AAL Make VCB is done through ()
a. air pressure b. charged spring c. both (a) (b) d. none of the above. Ans: (A)
15. Loco brake applies ..kg pressure ()
a. 2.0 b. 3.5 c. 1.5 d. 7.0 Ans: (B)
16. Back lash term is related to. ()
a. TFP b. Battery c. CBC d. Gears Ans: (D)
17. Multimeter is used to measure ()
a. voltage only b. current only c. resistance only d. all of the above Ans: (D)
18. Sand is used in locomotives to avoid. () a. wheel skidding b. wheel slipping c. brake failure d. all the above Ans: (B)
19. Leakage Test is conducted to find out leakage in ()
a. CP b. MR c. BP d. b&c Ans: (D)
20. The input / output voltage ratings of the DC-DC converter are:
a) 110V / 110V b) 110V/50V c) 110V / 24V d) 110V/20V Ans: (C)
21. Specific gravity of electrolyte is measured using. (a) Thermometer (b) Hygrometer (c) Hydrometer (d) Lactometer Ans: (C)
22. Flasher light is provided in loco
a) To communicate with the loco driver coming in the opposite direction about any difficulty.
b) To communicate with the loco driver coming in the same direction, about any Difficulty.
c) To inform the opposite coming loco driver about the abnormality noticed about OHE/Track.
d) All above. Ans: (D)
23. Battery charger function is normally
a) To supply the DC charging current to batteries b) To supply the D.C. load current to various control circuits c) To supply the current to Auxiliary motors d) Both (a) (b) Ans: (D)
24. Instrument used to measure contact resistance
(a) Whetstone bridge b) Multi meter c) Micro ohmmeter. (d) Ammeter Ans: (C)
25. Type of three phase locomotive available on Indian Railways
a) WAP1/WAP5/WAP4 b) WAG7/WAG9/WAP7 c) WAP5/WAP7/WAG9 d) None of the above
Ans: (C)
26. Type of motor used in 3 phase locomotives
a) DC series motor b) Three phase IM c) Single phase IM d) DC Shunt Motor Ans: (B)
27. Advantage of three phase locos.
a) Regenerative basis b) UPF c) Both a& b d) None of the above. Ans: (C)
28. In 3 phase locomotives, three phase indicates?
a) Three phase OHE supply system b) Three phase supply to the motor c) Both a b d) None of the above
Ans: (B)
29. Higher horse power locomotive available with which type of locomotive on Indian Railways.
a) WAG9 b) WAP7 c) Both d) WAP4 Ans: (A)
30. Important power device used in three locomotive for power conversion
a) IGBT b) GTO c) a&b d) IGCT Ans: (C)

31.Type of Pantograph used in 3 phase Locomotives

- a) AM12 b) AM92 c) IR03 d) All the above Ans: (D)

32. Different gear ratios in WAG9 loco is

- A 15:77, 18:64 b. 15:77, 20:72 c. 15:77, 21:107 d. 15:77, 17:77 Ans: (C)

33.Maximum braking effort of WAG-9 Loco is

- a. 260KN b. 458KN c. 182KN d. None of the above Ans: (A)

34.Voltage applied to Traction Motors (Phase to Phase) in WAG9-loco

- is a. 2180Volts b. 2800Volts c. 750Volts d. None of the above

Ans: (A)

35.If ZBAN is switched ON in WAG9 locomotive equipped with E-70 brake system.

- a) FP drops to zero b) BP drops to zero c) Over charging of BP takes place d) BP& FP drops to zero

Ans: (B)

36. Machine Room blower-I receives supply from

- a. BUR-1 b. BUR-2 c. 415 Volts directly from Transformer d. 110Volts directly from Transformer

Ans: (C)

37. Machine Room blower works

- a. In cooling mode b. In driving mode c. In cooling and Driving modes d. In Driving and self hold

mode Ans: (C)

38. Minimum Voltage relay in 3 phase locos is for

- a. Sensing of OHE Voltage in driving mode b. Sensing of OHE Voltage in Cooling mode c. Voltage protection in self hold mode d. Over voltage protection in simulation

mode Ans: (B)

39. Purpose of using machine Room blower in 3 phase locos

- a. Facilitating to work in driving mode for cooling machine room
b. Facilitating to work in self hold mode for cooling machine room
c. Facilitating to work in simulation mode for cooling machine room
d. Facilitating to work in cooling mode for cooling machine room

Ans: (D)

40.minimum voltage relay in three phase locos

- a. 86 in SB-2 b. 78 in SB-1 c. 86 in SB-1 d. 78 in SB-2 Ans: (C)

41.For working in cooling mode BL is to be operated from a. D-OFF-C b.

- OFF-C c. D-OFF-C-OFF-C d. b & c Ans: (D)

42.Continuous glowing of LSFI indicates

- a. Any of the sub-system is isolated b)A priority-II fault c. Any auxiliary motor is isolated
d) None of the above Ans: (A)

43. DC Link voltage of Traction Converter is

- a. 1172 Volts b. 2180Volts c. 2800Volts d. None of the above Ans: (C)

44.Traction Motors in three phase loco are

- a. 3 Phase slip ring induction motor b) 3 Phase squirrel cage induction motors c) 3 Phase synchronous motor..d) DC series motor Ans: (B)

45. Battery charger rectifier in 3 phase locos:

- a. Half Wave b. Bridge Full wave c. Full Wave center tap d. Both b & c Ans: (B)

46.BUS STATION cooling fans work on

- a. 110Volts b.48Volts DC c. 24Volts DC d. 110Volts AC Ans: (B)

47.VCB trips when transformer oil temperature rises to a. 80degrees b. 84 degree c. 75 degrees d. 70degrees Ans: (B)

48.Output of Auxiliary winding is
a. 415Volts b. 1000Volts c. 2100Volts d. 1200Volts Ans:
(B)

49.In three phases locos Priority-II message means
a. Trips VCB b. Shut down loco c. Isolates sub-system d. Allows normal functioning Ans: (D)

50.VCB trips when auxiliary circuit current exceeds
a. 280Amps b. 400Amps c. 500Amps d. 1000Amps Ans: (B)

51.Output frequency of a Traction Converter is
a. 60-120HZ b. 62-132HZ c. 50-100HZ d. None of the above Ans: (B)

52.ZTEL switch is used in
a. Banking mode b. Inching mode c. Simulation mode d. None of the above Ans: (B)

53.Type of batteries used in three phase locos
a. NiCd b. Both a & c c. Lead Acid d. None of the above Ans: (A)

54.Primary over current relay is
a. 89.7 b. 78 c. 89.6 d. 86 Ans: (B)

55.Time delay of Timer relay in MR
Blower
a. 08 Sec b. 10Sec c. 12 Sec d. 05 Sec Ans: (B)

56.Current rating of OCB MCB is
a. 40Amps b. 63 Amps c. 80Amps d.16 Amps Ans: (B)

57.The brake application time through DBC in WAG-9 locos is
a. 06 to 10secs b. 10to 15 secs c. 15 to 20secs d. none of the above Ans: (D)

58.Number of electronic cards available in
E-70panel
a. 4 b. 6 c. 2 d. 3 Ans: (A)

59.The pressure switch associated with working of Baby compressor is
a. Pn 26 b. Pn 60 c. Pn 59 d. Pn 6 Ans: (A)

60.The number of PBU available in WAG9 locos is
a. 04 b. 12 c. 02 d. 08 Ans: (A)

61.The number of sanders to be kept in service in WAG9-locos is a.
08 b. 12 c. 04 d. None Ans: (A)

62. In E-70brake system locos the coc-47 is used for
a. Moving the loco dead b. Application of brakes through A9 c. Operation/Isolation of PBU d. Operation/Isolation of sanders Ans: (A)

63.The size of choke available in sander circuit in WAG-9/WAP-7 locos
is a. 5.5mm b. 2mm c. 3 mm d. 4mm Ans: (C)

64.The switch used for isolation of vigilance control device is a.

125 b. 154 c. 160 d. 237.1 Ans: (D)

65.The operating pressure of contactors in TC1, 2 HF a.10kg/sqcm b.

6kg/sqcm c.5kg/sqcm d. 8kg/sqcm Ans: (D)

66.The pressure switch used for monitoring working of pantograph is

a.Pn 44 b. Pn 60 c.Pn 09 d. Pn 26 Ans: (C)

67.After completion of self-test in 3 locomotives following node will appear

a. 590 b. 570 c. 550 d. 504 Ans: (D)

68. Conversion of BP control pressure into electrical signal in 3 locomotives is

done by ----- .

a.Pressure sensor b. Pressure switch c.Pressure transducer d. None of the above Ans: (C)

69. 260indicate _____ equipment.

a.Filter block b. SR rack c.Pneumatic panel d. BUR Ans:

(C)

70. MU is not possible if _____ card is defective in any one of the 3 locomotives.

a.SLG1 b. ALG1 c.FLG1 d. SLG2 Ans: (C)

71. If MVR is not picking up then _____ .

a.Traction not possible b.RB not possible c.Cooling mode not possible d.Driving mode not

possible Ans: (C)

72 _____ & _____ processor cards present only in VCU1 and VCU2 respectively.

a. FBV, DIA b. STB, FBV c. ZBV, DIA d. STB, ZBV Ans: (C)

73 _____ no. of processor cards is interchangeable between VCU1 and VCU2 after

reloading the appropriate software. a. 2 b. 5 c. 6 d. 3 Ans: (B)

74. SLG1 SLG2 is interchangeable by changing _____ .

a.Hex address Software b. Software c.Hex address only d. Not interchangeable Ans:

(A)

75.TM speed sensor output is connected to _____ card in the _____ rack.

a. ASC PERI, SR b. NSC PERI, SR c. STB, VCU d. HBB, VCU Ans:

(A)

76.Number of TFP and SR oil pressure sensors available in loco are _____ and

_____ respectively. a. 4, 4 b. 4, 2 c. 2, 4 d. 1, 2 Ans: (B)

77. A GTO BUR 1 operates at _____ Frequencies.

i) 37 Hz ii) 50Hz iii) 44 Hz

a.I II b. I, II III c.II only d.I, III Ans: (D)

78.Consider following activities

1) SR changing 2) SRMPH changing 3) OCB radiator changing 4) VCB changing

Which of the above activities requires roof lifting?

a. 1 4 b. 2 3 c. 2 4 d. 1 3 Ans: (D)

79.Consider following activities

1) TM changing 2) Wheel Set changing 3)Axle damper changing 4) PHS changing

Which of the above activities requires loco lifting?

a. 1& 4 b. 3& 4 c. 2& 3 d. 1& 2 Ans: (D)

80. Correct arrangement of foot switches in 3 locomotives from Left to right in loco cab is _____

- | L | M | R |
|--------|------|------|
| a.PVCD | PVEF | PSA |
| b.PSA | PVCD | PVEF |
| c.PVEF | PSA | PVCD |
| d.PSA | PVEF | PVCD |

Ans: (D)

81. In SR1 rack of 3 locomotives, speed sensor connected to Sub-D, it "C" senses speed of _____

- a. TM 3 b. TM 2 c. TM 1 d. TM Ans: (B)

82. Following combinations of gear ratios are used for WAG9 locomotive _____ .

- a. 23:58 20:72 b. 23:72 20:58 c. 20:72 21:107 d. 15:77 21:107 Ans: (D)

83. For performing shunting _____ switch to be kept in _____ position and the speed limit is _____ kmph.

- a) 154, I, 1kmph b) 152, 0, 5 kmph c) 160, I, 15 kmph d) 162, 0, 5 kmph Ans: (C)

84. While working loco in _____ mode, VCD need not be acknowledged.

- a. Shunting b. Constant Speed c. Inching mode d. Braking mode Ans: (C)

85. Which of the following statement is correct.

- a) Teeth of bull gear of WAG9 < Teeth of bull gear of WAP7
 b) Teeth of pinion of WAG9 > Teeth of pinion of WAP7
 c) Teeth of bull gear of WAG9 > Teeth of bull gear of WAP7
 d) None of the above Ans: (C)

86. The number of teeth on the M/s ARC make Hall effect speed sensor ring are _____

- a. 30 b. 120 c. 60 d. 90 Ans: (B)

87. If the TM rotates at a speed of 600rpm then the frequency of pulse generated by ARC make speed sensor is _____ .

- a. 1.8 KHz b. 0.6KHz c. 0.3 KHz d. 1.2 KHz Ans: (D)

88. Consider following statements for healthy motor

1. No Inductance variation between different phases of motor
2. Low IR value
3. Low Temp. rise above ambient during run test
4. Low dB level recorded during run test

- a. 1, 2 3 b. 2, 3 4 c. 1, 3 4 d. 1, 2 4 Ans: (C)

89. Contactor 52/2 in auxiliary circuit is used for redistribution of _____ .

- a. MRB b. SCTMB c. TMB d. Battery Charger Ans: (D)

90. If any one the BURs isolated which of the following indicates correct position of 52.4/1, 52.4/2, 52.5/1 & 52.5/2 Contactors.

52.4/1 52.4/2 52.5/1 52.5/2

- | | | | |
|----------|-------|-------|-------|
| a. close | close | close | open |
| b. close | open | close | open |
| c. close | open | close | close |
| d. close | open | open | close |

Ans: (D)

91. Which of the following statements is correct?

- a) 89.5 Earth fault relay in auxiliary converter and it is located in HB1 panel
 b) 89.5 Earth fault relay in 415/110v and it is located in HB2 panel
 c) 89.5 Earth fault relay in auxiliary converter and it is located in HB2 panel
 d) 89.5 Earth fault relay in 415/110v and it is located in HB1 panel Ans: (D)

92. 24V and 48V DC-DC converter feeds _____ and _____ respectively.

- a) Electronic rack cooling fan Indication lamps
- b) Indication lamps Electronic rack cooling fan
- c) Indication lamps Head light
- d) Head light Indication lamps

Ans: (B)

93. Transformer in WAP7 is having _____ number of windings.

- a. 5 b. 6 c. 7 d. 8

Ans: (D)

94. MCB for machine room lightning is _____ .

- a. 310.1/1 b. 310.7 c. 338.1 d. 310.4

Ans: (D)

95. _____ number of change over contactors are provided in auxiliary circuit of 3 locomotives.

- a. 6 b. 9 c. 10 d. 8

Ans: (B)

Questions on Bogie

Q.No.01	No of parking brakes in WAG-9		Ans: C
	A) 02	B)03	
	C)04	D)05	
Q.No.02	TBU Stands for		Ans: B
	A) Thread brake unit	B)Tread brake Unit	
	C)Top brake unit	D)None of the above	
Q.No.03	PBU stands for		Ans: B
	A) poor brake unit	B)Parking brake unit	
	C)Parallel brake unit	D)None of the above	
Q.No.04	In WAG-9 loco TM is connected to Bogie by		Ans: B
	A) Rocker arm	B)Torque arm	
	C)Axle guide	D)Centre pivot	
Q.No.05	In WAG-9HC 'C' stands for		Ans: B
	A) Compressor	B)Conventional brake rigging	
	C)CBC	D)None of the above	
Q.No.06	Type of axle box bearing used inWAG-9		Ans: A
	A) CRU (Cylindrical roller unit) – 150 Type	B)wiring type	
	C)Tapper roller	D)None of the above	
Q.No.07	In WAG-9 grease used on non gear end of suspension tube		Ans: A
	A) SHC-120	B)RR3	
	C)Shell gadus	D)None of the above	
Q.No.08	Axle box grease used in WAG-9		Ans: C
	A) SHC-120	B)RR3	
	C)Shell gadus	D)RR460	
Q.No.09	Parking brake units are available on wheel No.		Ans: B
	A) 1,5,7&12	B)2,6,7&11	
	C)All the wheels	D)3,6,8&9	
Q.No.10	Lubrication oil used in WAG-9 gear case.		Ans: D
	A) RR360	B)RR260	
	C)RR560	D)RR460	
Q.No.11	Types of dampers available in WAG-9		Ans: D
	A) 2	B)5	
	C)8	D)4	
Q.No.12	Type of gears used in WAG-9 TM, Pinion & bull gear		Ans: A
	A)Helical gear	B)Spur gear	
	C)Bevel gear	D)Rack and pinion	
Q.No.13	Gear ratio of WAG-9H , TM and bull gear		Ans: B
	A) 200:107	B)21:107	
	C)23:108	D)24:125	

Q.No.14	No of 'D' shackle in WAG-9		Ans: C
	A) 5	B)3	
	C)4	D)7	
Q.No.15	No of sand boxes in WAG-9 per bogie		Ans: C
	A) 5	B)3	
	C)4	D)7	
Q.No.16	No of traction link housing per loco		Ans: B
	A) 2	B)4	
	C)5	D)1	
Q.No.17	No of spher blocks required for Torque arm.		Ans: C
	A) 4	B)3	
	C)2	D)5	
Q.No.18	The specified torque for tightening axle guide and torque arm bolts		Ans: B
	A) 540NM	B)640NM	
	C)440NM	D)740NM	
Q.No.19	The specified torque for tightening traction link bolts		Ans: A
	A) 110NM	B)150NM	
	C)120NM	D)116NM	
Q.No.20	No of spheriblocks used for one axle guide		Ans: A
	A) 2	B)1	
	C)3	D)4	
Q.No.21	Type of nuts used to tightened axle guide bolts torque arm bolts		Ans: B
	A) Nylock nut	B) F-S steel locknut	
	C)M.S nut	D) None of the above	
Q.No.22	The specified torque for tightening retaining plate		Ans: A
	A) 80NM	B)60NM	
	C)90NM	D)50NM	
Q.No.23	How many number of brake blocks are provided on a wheel of WAG-9 with TBU/PBU type brake rigging arrangement		Ans: C
	A) 2	B)6	
	C)4	D)5	
Q.No.24	How many brake keys required for WAG-9 loco per wheel		Ans: C
	A) 3	B)4	
	C)2	D)1	
Q.No.25	The reason for converting TBU/PBU brake system in WAG-9 to conventional brake rigging		Ans: D
	A) Simple design to maintain	B)Low cost components	
	C)Less weight when compared to TBU & PBU	D)All of the above	
Q.No.26	Match the following		Ans
	A) Speriblocks	1)Traction link housing	A-5
	B)'V' ring	2)0.20 o 0.97mm	B-1
	C)TBU provided on W.No	3)SHC-120	C-4
	D)WAG-9 TM pinion and bull gear backlash	4)1,3,4,5& 8,9,10,12	D-2
	E)Non gear end suspension tube grease of WAG-9	5)Torque arms & axle guides	E-3

M2 Section :

Q.No.1	Rail Guard height		Ans: A
	A) 119mm to 104mm	B) 106mm to 118mm	
	C) 110mm to 125mm	D) 108mm to 120mm	
Q.No.2	Buffer Height		Ans: A
	A) 1105mm to 1030mm	B) 1108mm to 1020mm	
	C) 1100mm to 1010mm	D) 1104mm to 1040mm	
Q.No.3	Knuckle Hole Dia		Ans: A
	A) 40.0mm to 48.0mm	B) 41.0mm to 49.0mm	
	C) 42.0mm to 50.0mm	D) 39.0mm to 47.0mm	
Q.No.4	Clevis hole Dia		Ans: A
	A) 37.0mm to 45.0mm	B) 38.0mm to 46.0mm	
	C) 39.0mm to 47.0mm	D) 40.0mm to 48.0mm	
Q.No.5	Yoke Pin hole Dia		Ans: A
	A) 95.02mm to 99.9mm	B) 96.02mm to 98.9mm	
	C) 97.02mm to 99.9mm	D) 98.02mm to 99.9mm	
Q.No.6	Knuckle nose wear limit gauge.		Ans: A
	A) 9.5mm	B) 8.4mm	
	C) 9.6mm	D) 9.4mm	
Q.No.7	Yoke pin dia in mm new?		Ans: A
	A) 88.9mm	B) 100mm	
	C) 101mm	D) 102mm	
Q.No.8	How many types of Draft gears,		Ans: A
	A) 2	B) 4	
	C) 6	D) 8	
Q.No.9	Number of Look Out glasses in Locomotive.		Ans: B
	A) 2	B) 4	
	C) 8	D) 16	
Q.No.10	What is CBC Stands for		Ans: B
	A) Center Body Coupler	B) Centre Buffer Coupler	
	C) Center Bogie Coupler	D) None of them	
Q.No.11	CBC Height from Rail Guard.		Ans: C
	A) 1050mm to 1109mm	B) 1015mm to 1105mm	
	C) 1040mm to 1105mm	D) 1060mm to 1110mm	
Q.No.12	What is the use of Cattle Guard		Ans: B
	A) Loco Balancing	B) To protect under body Equipments.	
	C) 1 and 2	D) none	

Q.No.13	CBC Knuckle wearing Instrument Gauge	Ans: A
	A) Knuckle stretch and nose wear gauge	B) Contour worn limit
	C) Contour worn limit gauge No.2	D) None of them
Q.No.14	Knuckle pin dia in mm new	Ans: A
	A) 41.2mm	B) 41.6mm
	C) 36.5mm	D) 40.2mm
Q.No.15	Clevis pin dia in mm new?	Ans: A
	A) 38.0mm	B) 36.0mm
	C) 35.0mm	D) 34.0mm

M3&M5 Section: Question Bank.

Q.No.1	Type of pantographs used for WAP-7 loco is	Ans: C
	A)AM12	B)IR01
	C)IR03	D)PAN-03
Q.No.2	AM12, AM92 are types of equipments used in	Ans: A
	A)Pantographs	B)Transformer
	C)Servomotor	D)DJ
Q.No.3	Brake application time through A9 in WAG-9 Loco	Ans: D
	A)18 to 24 sec	B)10 to 15sec
	C)5 to 10 sec	D)15 to 25sec
Q.No.4	BC pressure through SA9 applied condition.	Ans: C
	A) 1.8 kg/cm ²	B)2.0 kg/cm ²
	C)3.5 kg/cm ²	D)2.5 kg/cm ²
Q.No.5	BC pressure through A9 applied condition in WAG9 locomotive	Ans: C
	A)2.2 kg/cm ²	B)3.5 kg/cm ²
	C)2.5 kg/cm ²	D)3.0 kg/cm ²
Q.No.6	Nominal pressure to Raise pantograph	Ans: D
	A)8.0 kg/cm ²	B)2.0 kg/cm ²
	C)7.0 kg/cm ²	D)4.5 kg/cm ²
Q.No.7	The standard setting of Brake Pipe pressure in WAG-9 loco	Ans: B
	A)6.0 kg/cm ²	B)5.0 kg/cm ²
	C)5.5 kg/cm ²	D)4.5 kg/cm ²
Q.No.8	Standard setting of feed pipe pressure in WAG-7	Ans: A
	A)6.0 kg/cm ²	B)5.0 kg/cm ²
	C)6.5 kg/cm ²	D)8.0 kg/cm ²
Q.No.9	Maximum MR pressure drop is allowed for 5 min is	Ans: D
	A)1.2 kg/cm ²	B)1.0 kg/cm ²
	C)1.5 kg/cm ²	D)0.8 kg/cm ²
Q.No.10	The standard setting of RGCP in WAG-9 loco is	Ans:A
	A)8.0 kg/cm ² to 10 kg/cm ²	B)7.5 kg/cm ² to 8.5 kg/cm ²
	C)8.0 kg/cm ² to 9.5 kg/cm ²	D)6.5 kg/cm ² to 7.5 kg/cm ²
Q.No.11	Standard setting of MCPA (SS1) safety valve is	Ans: C
	A)7.5 kg/cm ²	B)8.5 kg/cm ²
	C)9.6 kg/cm ²	D)10 kg/cm ²
Q.No.12	Standard setting of MR safety valve SS2	Ans: B

	A)9.5 kg/cm2	B)10.5 kg/cm2	
	C)11 kg/cm2	D)12 kg/cm2	
Q.No.13	Brake application time through SA9 in WAG-9 is		Ans: B
	A)5 to sec	B)6 to 9 sec	
	C)10 to 15 sec	D)4 to 6 sec	
Q.No.14	Brake releasing time through SA9 in WAG-9 is		Ans: A
	A)9 to 12 sec	B)8 to 15	
	C)15 to 20 sec	D)15 to 25	
Q.No.15	Raising and lowering time of pantograph should be in time limit of		Ans: B
	A)6 to 15 sec	B) 6 to 10 sec	
	C)10 to 15 sec	D) 0 to 6 sec	
Q.No.16	The condemn size of panto pan carbon strip is		Ans: C
	A)5.0mm	B)4.0 mm	
	C)3.5 mm	D)6.0mm	
Q.No.17	Swivel angle of panto pan is		Ans: A
	A)7°± 1°	B) 14°± 1°	
	C)5°± 1°	D)12°± 1°	
Q.No.18	The purpose of unloader valve is to		Ans: A
	A)Avoid burning of MCPSS	B)Avoid burning of MCPA	
	C) Avoid burning ofMVMT	D) Avoid burning of ARNO	
Q.No.19	The unit of compressed air pressure is		Ans: D
	A)kg/cm2	B)PSI	
	C)Bar	D) All of the above	
Q.No.20	The unit of sound is		Ans: C
	A)kg/cm2	B)Amperes	
	C)Decibel	D)Gallons	
Q.No.21	C2B relay valve is for		Ans: C
	A)FP Charging	B)BP dropping	
	C)Brakes application	D)None of the above	
Q.No.22	Air dryer is provided between which reservoir in WAP-7		Ans: C
	A)MR3& MR4	B)MR1 & MR2	
	C)MR2& MR3	D)RS&CR	
Q.No.23	BP and FP angle cocks are painted with colours respectively		Ans: C
	A)Red and Green	B)Green and Black	
	C)Green and White	D)Blue and White	
Q.No.24	MR and BC equalizing cocks are painted with colours respectively		Ans: B
	A)Red and Green	B)Red and White	
	C)Blue and white	D)None of the above	
Q.No.25	Governor for MCP is		Ans: A
	A)RGCP	B)RGEB	
	C)MCPA	D)VCP	
Q.No.26	The normal position of A-8 cock is		Ans: B
	A)Close	B)Open	
	C)Semi-Open	D)None of the above	

Q.No.	Match the following		Ans:
Q.No.27	A)A9	1)Feed valve	A-3
Q.No.28	B)SA9	2)3054	B-5
Q.No.29	C)BP	3)Automatic Brake Valve	C-6
Q.No.30	D)Plunger Box	4)High reach Panto	D-7
Q.No.31	E)PT1	5)Independent brake valve	E-1
Q.No.32	F)RGCP	6)Brake Pressure	F-9
Q.No.33	G)Duplex Piston valve	7)Pantograph	G-8
Q.No.34	H)NBI 85HR	8)Air Dryer	H-4
Q.No.35	I)IP Valve	9)Pressure switch	I-2
Q.No.36	J)Solenoid	10)Magnet valve	J-10

Q.No.1	ZTEL switch is used for		Ans: B
	A) cooling mode	B) Inching mode	
	C) Banking mode	D) None of these	
Q.No.2	Primary over current relay is		Ans: C
	A) 66	B)86	
	C)78	D)84	
Q.No.3	In WAG-9 locos the 3 Phase output of AUX- Converter is		Ans: D
	A) 380V	B) 230V	
	C) 600V	D) 415V	
Q.No.4	The location of Harmonic filter Resistance is		Ans: B
	A) In Cab	B) On Roof	
	C) In Corridor	D) Under Gear	
Q.No.5	Minimum voltage relay in 3 phase locos is for		Ans: A
	A) Sensing of OHE Voltage in driving mode	B) Sensing of OHE voltage in Cooling mode	
	C) Voltage protection in self hold mode	D) Over voltage protection in simulation mode	
Q.No.6	Input of Auxiliary converter is		Ans: B
	A) 415Volts	B) 1000Volts	
	C) 2100Volts	D) 1200Volts	
Q.No.7	ERC Cable connected to axle box No.		Ans: A
	A) 1,6,7,12	B) 1,2,11,12	
	C) 5,6,7,8	D) 3,4,9,10	
Q.No.8	Minimum Voltage relay is		Ans: B
	A) 66	B) 86	
	C) 78	D) 84	
Q.No.9	In WAG-9 Speedometer MCB is		Ans: B
	A) 237	B) 127.92	
	C) 137.11	D) 122.1	
Q.No.10	ZBAN switch is used for		Ans: C
	A) cooling mode	B) Inching mode	
	C) Banking mode	D) None of the above	
Q.No.11	In WAG-9 Battery Charger MCB No is		Ans: A
	A) 100	B) 127	
	C) 137	D) 120	

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Q.No.12	VCB Pressure Regulator setting is		Ans: B
	A) 10 Kg/cm ²	B) 5.2 kg/cm ²	
	C) 6 Kg/cm ²	D) 7.1 Kg/cm ²	
Q.No.13	For isolation of AUX- Converter No. 1 trip MCB No.		Ans: B
	A) 237	B) 127.22/1	
	C) 137.11	D) 112.1	
Q.No.14	VCB will close when QPDJ pressure is at ____ Kg/cm ² and will trip when it comes to ____ Kg/cm ²		Ans: B
	A) 5/4	B) 4.6/4	
	C) 3/3.5	D) 6/5.2	

OFFICIAL LANGUAGE(HINDI):

(A) Write suitable English words for the following

- | | |
|-------------|-------------|
| 1) गुणवत्ता | QUALITY |
| 2) उपयोगी | USEFUL |
| 3) रखरखाव | MAINTENANCE |
| 4) सहायक | AUXILIARIES |
| 5) प्रयोजन | PURPOSE |

(B) Write correct Hindi designations for the following

- 1) ADRM
- 2) Sr.DAO
- 3) Sr.DPO
- 4) Sr.DSO
- 5) Dy.CEE

(C) Write correct Hindi designations for the following

- 1) SDGM
- 2) COM
- 3) CSO
- 4) CSTE
- 5) Dy.CEE

(D) Translate into English

- | | |
|--------------------|------------------------------|
| a) विद्युत सुरक्षा | ELECTRICAL PROTECTION/SAFETY |
| b) आग दुर्घटना | FIRE ACCIDENT |
| c) उपस्थिति लेखा | ATTENDANCE REGISTER |
| d) परीक्षा | EXAMINATION |

(E) Translate into Hindi

- | | |
|-------------------------------|--------------------|
| a) Electrical Charge man | विद्युत चार्ज आदमी |
| b) Divisional Railway Manager | मंडल रेल प्रबंधक |
| c) Approved | स्वीकृत |
| d) Casual Leave | आकस्मिक अवकाश |

Latest Questions

1. Formula for calculation of AAC (A)
 P=population of Loco. Q=Quantity for Loco. L=periodicity Y=POH
 (A) $\frac{P \times Q}{L} \left(1 - \frac{2}{Y}\right)$ (B) $\frac{Q \times L}{P} \left(1 - \frac{2}{Y}\right)$ (C) $\frac{P \times L}{Q} \left(1 - \frac{2}{Y}\right)$ (D) Non of the above
2. The E70 term is very popular in the brake system. What is meant by "70" there (A)
 (A) 1970 developed technology (B) 70 value (C) 70cock (D) None of the above
3. Full form of CCB (B)
 (A) CGL control brake system (B) computer control brake system
 (C) Contactor control brake system (D) converter control brake system
4. Full form of PTDC (A)
 (A) Pneumatic time dependent control (B) Pneumatic train dependent control
 (C) Pneumatic time develops control (D) none of the above
5. Battery charger input and output MCB'S respectively in 3- Ø loco are (A)
 (A) 100 & 110 (B) 110 & 100 (C) 112.1 & 112 (D) 112 & 100
6. output voltage of Hotel load converter in WAP7 loco is (B)
 (A) 700V (B) 750V (C) 415V (D) 230V
7. Un Balanced current limit in Hotel load converter of WAP7 is (C)
 (A) 100A (B) 75A (C) 50A (D) 150A
8. Full form of MICAS (C)
 (A) Multiple computer auto system (B) Mini controller automation system
 (C) Micro computer automation system (D) Micro controller automation system
9. Traction motor used in WAP7 locos (D)
 (A) DC series motor (B) 3- Ø Slip ring induction motor
 (C) Stepper motor (D) 3-Ø squirrel cage induction motor
10. No. of traction motor used in WAP5 loco (B)
 (A) 6 (B) 4 (C) 5 (D) 7
11. Type of Bogies used in WAP5 loco (A)
 (A) BO.BO (B) CO.CO (C) B-B (D) C-C
12. Parking brakes are available to the wheel no of WAG9 loco is (C)
 (A) 1,5,7,9 (B) 1,2,6,9 (C) 2,6,7,11 (D) 2,5,7,11
13. No. of Roof Bars used 3-Ø loco motive is (A)
 (A) 3 (B) 2 (C) 5 (D) 6
14. No. of AuX motors working with 3-Ø supply in WAG9 is (B)
 (A) 6 (B) 12 (C) 8 (D) 16
15. No of Aux motors' working with 1-Ø supply in WAG9 is (D)
 (A) 1 (B) 2 (C) 3 (D) 4
16. Output voltage of BUR in WAG9 loco is (A)
 (A) 41 5V (B) 230V (C) 750 V (D) 1000V
17. Standard measurement of OCB air flow (m/sec) in 3-Ø loco is (A)
 (A) 8 (B) 6 (C) 12 (D) 14

18. Aux contactor for VCB in 3-Ø loco is (D)
(A) 126 (B) 218 (C) 130.1 (D) 136.4
19. Full form of IGBT is (D)
(A) Integrated Bipolar Thyristor (B) Insulator bistable Transistor
(C) Integrated bistable thyristor (D) Insulated gate bipolar transistor
20. Which one of the below is Contactor power supply cab (A)
(A) 126.7 (B) 126.6 (C) 126 (D) 136.4
21. Which is the "Contactor control circuit ON" contactor (B)
(A) 126.6 (B) 126 (C) 130.1 (D) 126..7
22. Which is the "Relay control Electronics OFF" contactor (C)
(A) 130.1 (B) 126.7 (C) 126.5 (D) 126.6
23. Which is the "contactor control Electronics" contactor (A)
(A) 218 (B) 126 (C) 130.1 (D) 211
24. which is the "Relay temperature Electronics" contactor (A)
(A) 211 (B) 218 (C) 126 (D) 126.6
25. Which is the "Safety relay control electronics ON" contactor (A)
(A) 126.6 (B) 126.7 (C) 126 (D) 318
26. In E70 system, what happens when transducer is removed (B)
(A) MR uncontrolled (B) BP overcharges (C) FP overcharges (D) PB pressure uncontrolled
27. In IGBT, Gate is controlled with (B)
(A) current (B) voltage (C) power (D) none
28. GTO gate requires _____ for switch (B)
(A) high current for ON (B) high current for off (C) high voltage for ON (D) high voltage for OFF
29. "S/R interlock MR low" pressure switch is (A)
(A) 269.4 (B) 269.41 (C) 269.2 (D) 269.42
30. "SR interlock MR low" message at displayed at node no .590 when MR reaches (A)
(A) <5.6 kg/cm² (B) >6.4kg/cm² (C) <6.4kg/cm² (D) >5.6kg/cm²
31. Dimensions of WAG9 loco in mm is (D)
(A) 20562,3150,4255 (B) 20500,3150,4200 (C) 20692,3200,4255 (D) 20562, 3152,4255
32. No. of secondary helical spring available in WAG9 (B)
(A) 10 (B) 8 (C) 12 (D) 6
33. Full form of ESMON is (D)
(A) Energy speed maintain (B) Emergency speed monitoring
(C) Energy speed control (D) Energy Speed monitoring
34. Interrupter used in which equipment (C)
(A) SPM (B) VCU (C) VCB (D) SR
35. What is the meaning of H in WAG9H loco (B)
(A) Heavy control (B) High adhesion (C) High power (D) High capacity
36. How many secondary spring used in WAG9H loco (A)
(A) 16 (B) 8 (C) 12 (D) Non of the above

37. In PTDC operation loco works with -----speed (B)
(A) 30kmph (B) 10kmph (C) 30kmph (D) 40kmph
38. Type of coolant used in IGBT traction converter is (A)
(A) Ethylene Glycol (B) Acetylene Glycol (C) Distilled water (D) Heavy water
39. Wheel dia of new commissioned loco of WAG9/ WAP7 is (B)
(A)1097 mm (B) 1092 mm (C)1107mm (D)1062mm
40. Total weight of WAG9H loco (in tonnes) is (B)
(A) 125 (B) 135 (C) 150 (D) 120
41. Rating of OCB MCB is (C)
(A) 40A (B) 80A (C) 63A (D)20A
42. Subsystem Number of Aux conv.3 is (D)
(A) SS01 (B) SS05 (C) SS06 (D) SS08
43. Subsystem number of speedometer is (C)
(A)SS14 (B) SS15 (C) SS16 (D) SS17
44. Earth fault Relay of Harmonic filter (C)
(A) 89.2 (B) 89.5 (C) 89.6 (D) 89.7
45. Over current relay in 3-Ø loco (A)
(A) OCR 78 (B) OCR 78.1 (C) OCR 86 (D) OCR 86.1
46. Horse power of WAG 9 loco is (B)
(A) 5660HP (B) 6120HP (C) 6400HP (D) 5800HP
47. Condemned wheel dia of WAP 7 (A)
(A) 1016MM (B) 1026MM (C) 1019 MM (D) 1022 MM
48. MRT922 is the model of (B)
(A)VCB (B) SPM (C) VCU (D) BUR
49. DDU (Driver display unit) is provided in which panel (C)
(A) A panel (B) B panel (C) C panel (D) D panel
50. The master processor in MICAS VCU is (C)
(A) STB (B) HBB (C) FLG (D)FBV
51. How many primary springs used in WAG9/WAP7 locos (B)
(A) 16 (B) 32 (C) 48 (D) 24
52. what is maximum inching mode speed (A)
(A) 1.5 kmph (B) 1.8 kmph (C) 0.8 kmph (D) 1kmph
53. Inching made activated when (A)
(A) Both SR's in service (B) SR 1 only in service (C) SR 2 only in service (D) none
54. What could be the probable reason for main power getting off with BUR1 followed by BUR2 isolations? (A)
(A) OCB 1or2 (B) TMB 1or2 (C) MCP 1or2 (D) SCTMB1or2
55. How many primary springs used in WAG9H locos (C)
(A) 24 (B) 32 (C) 48 (D) 40

56. What could be the probable reason for main power getting off with BUR2 followed by BUR1 isolation (A)
 (A) TMB 1or2 (B) Any MPH (C) MCP (D) OCB 1or 2
57. Full form of RTIS (B)
 (A) Real time Information system (B) Real time train information system
 (C) Railway train information system (D) Railway time information system
58. Full form of TPWS (B)
 (A) Train power works system (B) Train protection and warning system
 (C) Train plan and warning system (D) none of the above
59. Full scale deflection of SPM in WAP7(in kmph) (A)
 (A) 180 (B) 160 (C) 120 (D) 200
60. In 3-Ø locos BP drops when speed exceeds _____ percentage in SPM (C)
 (A) 100% (B) 105% (C) 110% (D) 120%
61. 8.2 contactor closes when _____ in service (C)
 (A) SR1 only (B) SR2 only (C) SR1&2 (D) None of the above
62. 8.1 Contactor closes when _____ in service (D)
 (A) SR 1 only (B) SR2 only (C) SR1&2 (D) All above
63. Purpose of 8.41 contactor is (B)
 (A) Charges HF capacitors (B) discharges HF capacitors
 (C) Charges SR DC link capacitors (D) discharges SR DC link capacitors
64. Auxiliary winding voltage in 3-Ø loco is (C)
 (A) 750V (B) 1500V (C) 1000V (D) 415V
65. In CCB2 loco "Brake electronics failed", message displayed when A9 selection switch position kept in lead cab _____ trail cab _____ position (B)
 (A) Lead, trail (B) lead, leads (C) trail, lead (D) trail, trail.
66. 2111A & 2111B cables getting 110V supply in E70 locos will cause (B)
 (A) BP will not create (B) brake electronics failed
 (C) Parking brake will not create (D) none
67. No. Of Hotel load converters available in WAP7 locos (B)
 (A) 1 (B) 2 (C) 3 (D) 4
68. no. of Hotel load winding available in WAP 7 locos (D)
 (A) 1 (B) 4 (C) 3 (D) 2
69. VCD Penalty time in CCB2.0 loco is (B)
 (A) 60sec (B) 76 sec (C) 70 sec (D) 68 sec
70. "SR Interlock loco brake "message display after _____ speed (C)
 (A) 15 kmph (B) 14 kmph (C) 10Kmph (D) 20kmph
71. VCD cycle starts after _____ speed in WAG9 locos (C)
 (A) 2kmph (B) 5kmph (C) 1.5kmph (D) 2.5kmph
72. E70 COC in E70 system equal to _____ COC in Conventional loco (B)
 (A) RAL (B) A8 (C) R1 (D) IP
73. Cooling mode works with the following relays (A)
 (A) MVR, 126.6 (B) MVR, 211 (C) 126.5 (D) 218

74. CCB2 loco consists of the following (B)
(A) DBC (B) EBV (C) FDV (D) D2 Valve
75. Full form of EBV in CCB 2.0 is (A)
(A) Electronics brake value (B) Electric brake value
(C) Exhaust brake value (D) Electronics Blending value.
76. Potential transformer ratio in WAP7 loco is (B)
(A) 112:1 (B) 125:1 (C) 87.5:1 (D) 150:1
77. output of Potential transformer in WAP7 connected to (D)
(A) SR 1&2 (B) MVR (C) U1&U2 (D) All the above
78. 89.6 Relay pick up current in WAP7 loco is (B)
(A) 100mA (B) 150 mA (C) 175 mA (D) 200 mA
79. Resonant filter frequency is _____ in SR (B)
(A) 50 Hz (B) 100Hz (C) 60Hz (D) 120Hz
80. 3-Ø loco consists _____ no. of change over contactors in Aux circuit (D)
(A) 8 (B) 4 (C) 6 (D) 9
81. Signal name 'B' indicates in WAG9 locos is (B)
(A) Driver command (B) output of processor (C) Input of processor (D) none
82. In hotel load converter, 3phase, 415V supply to the Fan is derived from (A)
(A) HOG converter output (B) BUR output (C) auxiliary winding (D) 1000V/415V, 110V Transformer
83. MCE Reset circuit operates _____ contactor (B)
(A) 211 (B) 218 (C) 126 (D) 126.6
84. MCP contactor rating in WAG9 loco is (A)
(A) 80A (B) 150A (C) 100A (D) 125A
85. What is the node number in self hold mode (D)
(A) 504 (B) 570 (C) 605 (D) 612
86. Voltage rating of QFL Relay in 3-Ø loco is (B)
(A) 48 v (B) 24V (C) 110V (D) 12V
87. Wandler module used to measure _____ Voltage in SR (B)
(A) D C link (B) OHE (C) battery (D) None of the above
88. GUSP output Voltage used for _____ in GTO SR locos (A)
(A) Gate unit (B) GTO'S (C) cooling fans (D) SR Rack
89. Hotel load converter output Voltage is _____ system (A)
(A) 3Ø 3wire (B) 3Ø 4wire (C) 1Ø 2 wire (D) All the above
90. 'ON' command to the HL converter is generated when (C)
(A) BLHO 'ON' (B) pacco switch in power car 'ON' (C) both A&B (D) either A or B
91. Hotel load converter output phase sequence can be ensured by checking air circulation. (A)
(A) Bottom to top duct (B) top to bottom duct (C) inlet from both duct (D) output from both duct
92. What does F0504P1 fault indicates (A)
(A) Over current in HOG converter (B) Earth fault in aux. circuit (C) Over voltage in SR (D) both A&B
93. PT raising in cooling mode, but not raising in Driving mode, the probable cause could be (C)
(A) VEPT (B) 130.1 (C) Input/output card (D) PT defective

94. In the commonly used term TCN-VCU what does TCN stands for (A)
 (A) Train communication net work (B) Train control net work
 (C) Train connect net work (D) None of the above
95. The word WTB is used widely in conjunction with push pull of loco operation. What does WTB means (A)
 (A) Wired train bus (B) wireless train bus (C) wide train bus (D) None of the above
96. Hotel load converter control supply MCB is located at (B)
 (A) SB1 (B) SB2 (C) HB1 (D) HB2
97. IGBT invented by (A)
 (A) Jayanth Baliga (B) Ramanujan (C) Gordon hall (D) John Ambrose
98. Cab AC works in 3Ø loco only when _____ working (C)
 (A) BUR3 (B) BUR2only (C) all BUR'S (D) BUR1
99. "8.41 stuck off" message generates in 3Ø loco when _____ defective. (A)
 (A) 8.1 NC or 8.41 NO (B) 8.1 NO or 8.41 NC (C) 8.1 NO or 8.41 NO (D) 8.1 NC or 8.41 NC
100. In MU operation of 3Ø locos _____ pantographs rises (C)
 (A)Both lead (B) both rear (C) Both end (D) none of the above
101. In MU operation of 3Ø locos _____ loco first kept in self hold mode _____ loco switched MCE 'ON' (B)
 (A) Lead, trail (B) trail, lead (C) Both A and B (D) none of the above
102. Height adjustment arrangement in H type CBC can be done by (C)
 A) Adding liner plate B) Removing liner plate C) Adjustment by Spring D)None of the above
103. If there is a brake binding on the wheel, it will cause (B)
 A) Wheel slip B) wheel skidding C) Both A and B D) None
104. Poor adhesion causes (A)
 A) Wheel slips B) wheel skidding C) Both A and B D) None
105. Rating of transformer in WAP7 with hotel load winding (D)
 A) 6130kVA B) 6531kVA C) 5400kVA D) 7775kVA
106. Conversion of BP control pressure into electrical signal in 3Ø locomotives is done by- (C)
 a).Pressure sensor b).Pressure switch
 c).Pressure transducer d).None of the above
107. TM speed sensor output is connected to _____ card in the _____ rack. (A)
 a).ASC PERI, SR b).NSC PERI, SR c).STB, VCU d).HBB, VCU
108. Consider following activities (D)
 1. TM changing 2.Wheel Set changing 3.Axle damper changing 4.PHS changing
 Which of the above activities requires loco lifting?
 a.1 & 4 b.3 & 4 c. 2 & 3 d.1 & 2
109. Correct arrangement of foot switches in 3Ø locomotives from Left to right in loco cab is _____. (D)
 a. PVCD PVEF PSA
 b. PSA PVCD PVEF
 c. PVEF PSA PVCD
 d. PSA PVEF PVCD
110. While working loco in _____ mode, VCD need not be acknowledged. (C)
 a).Shunting b).Constant Speed c).Inching mode d).Braking mode

111. If the TM rotates at a speed of 600 rpm then the frequency of pulse generated by ARC make speed sensor is _____. (D)
a) 1.8 KHz b) 0.6KHz c) 0.3 KHz d) 2 KHz
112. In self hold mode means electronics will remain active for _____ min. (C)
(a) 15 min (b) 5 min (c) 10 min (d) 8 min
113. The fault message F0101p1 results in _____. (B)
(a) No effect (b) Main power off (c) Cab-1 off (d) Cab-2 off
114. ZBAN stands for _____ in WAG9 loco. (A)
(a) Switch for Banking (b) Switch for Vigilance
(c) Switch for Braking (d) Switch for constant speed
115. The brake rigging arrangement of WAP7 locomotives is similar to _____ locomotive. (C)
(a) WAG-5 (b) WAP-4 (c) WAG-7 (d) WAP-5
116. The grease used for lubrication of bearings of FRA 6068 is _____. (A)
(a) SHC 120 (b) Servo Gem 460 (c) Servo 65 (d) 170
117. The TE/BE throttle is having _____ positions. (A)
a) 4 positions 0, 1/3, 2/3, FULL b) 5 positions 1, 1/5, 2/3, FULL
c) 2 positions 0, 1/5, 2/3, FULL d) 4 positions 4, 1/5, 5/3, FULL
118. What is the condition monitoring test of TFP oil? (A)
a) DGA b) VGA c) BUR d) SMB
119. Pressure setting of DDBV (SA9) in WAG9 loco (A)
a) 3.5 kg/cm² b) 1.5 kg/cm² c) 7.5 kg/cm² d) 5.5 kg/cm²
120. Pressure setting of DBC (A9) in WAG9 loco (D)
a) 5.5 kg/cm² b) 7.5 kg/cm² c) 1.5 kg/cm² d) 2.5 kg/cm²
121. Capacity of MR-1, 2 tanks in WAG9 loco? (D)
a) 350 ltrs b) 250 ltrs c) 150 ltrs d) 450 ltrs
122. Capacity of auxiliary reservoir in WAG9 loco? (C)
a) 140 ltr b) 440 ltrs c) 240 ltrs d) 640 ltrs
123. Capacity of Compressors in WAG9 loco? (D)
a) 1560 LPM b) 1250 LPM c) 1670 LPM d) 1750 LPM
124. Pressure Setting of SS-2 in WAG9 loco? (D)
a) 6.5kg/cm² b) 8.5kg/cm² c) 2.5kg/cm² d) 10.5kg/cm²
125. How many positions does DBC have in WAG9 loco? (A)
a) 05 b) 06 c) 08 d) 10
126. Parking brake PRV setting is in WAG9 loco? (A)
a) 6kg/cm² b) 4kg/cm² c) 8kg/cm² d) 10kg/cm²
127. Name of lubricating oil used in gear case of 3 phase locos..... (B)
a) SERVOSYN 220 RR b) SERVOSYN 460 RR
c) SERVOSYN 260 RR d) SERVOSYN 560 RR
128. Name of the grease used in axle boxes of 3 phase locos.... (D)
a) SHELL GUARRAGE b) SHUT GADUS
c) SHUT GUARRAGE d) SHELL GADUS

129. Name of the grease used in NDE side of Suspension tube bearings of WAG9 loco (C)
a) SERVOPLEX SHC-150 b) SERVOPLEX SHC-180
c) SERVOPLEX SHC-120 d) SERVOPLEX SHC-100
130. Name of the lubricant used for DE Side of suspension tube bearings of WAG9 loco (B)
a) SERVOSYN 170 RR b) SERVOSYN 460 RR
c) SERVOSYN 360 RR d) SERVOSYN 860 RR
131. Total number of dampers available in 3 phase loco..... (C)
a) 10 b) 15 c) 20 d) 25
132. Total number of secondary dampers provided in 3 phase loco.... (D)
a) 02 b) 06 c) 09 d) 04
133. Quantity of gear case oil added in 3 phase locos. (D)
a) 4 LTRS b) 6LTRS c) 8LTRS d) 5LTRS
134. Total number of additional load added in WAG 9 H Loco in form of dead weights (D)
a) 04 b) 05 c) 06 d) 02
135. Loco body is lowered on which part of bogies (C)
a) First helical springs b) secondary helical spares
c) Secondary helical springs d) semi helical spares
136. What ring is used in centre pivot housing..... (D)
a) ACETONE RANGE b) ACETONE RING c) ACLATHAN RANGE
d) ACLATHAN RING
137. Which test is carried out for checking of rotor bars (A)
a) Growler test b) guard test c) German test d) growing test
138. In SGCI Labyrinth, SGCI stands for (A)
a) Spheroidal graphite cast Iron b) Spheroidal grap cast Iron
c) Spheroidal cast graphite Iron d) Spheroidal cast Iron graphite
139. The grease used for lubrication of bearings of 6FRA6068 (D)
a) Isoflex SHC110 b) Isoflex SHC140
c) Isoflex SHC150 d) Isoflex SHC120
140. SRBGF stands for (D)
a) Synthetic Rexine Based Glass Fibre
b) Synthetic Resin Based Glass Fibre
c) Synthetic Resin Bonded Guard Fibre
d) Synthetic Resin Bonded Glass Fibr
141. Type of bearings used in TM type 6FRA 6068 (D)
a) Cylindrical roller bearing (DS side NU2235 & NDE side NJ321)
b) Cylindrical roller bearing (DB side NU2238 & NDE side NJ322)
c) Cylindrical roller bearing (DS side NU2239 & NDE side NJ323)
d) Cylindrical roller bearing (DE side NU2236 & NDE side NJ320)
142. In SGCI Labyrinth, SGCI stands for (A)
a) Spheroidal graphite cast Iron b) Spheroidal grap cast Iron
c) Spheroidal cast graphite Iron d) Spheroidal cast Iron graphite
143. Maximum speed of TM type 6FRA6068 (A)
a) 2584 rpm b) 5864 rpm c) 8542 rpm d) 6458 rpm
144. Maximum current rating by TM type 6FRA 6068 (B)
a) 270 A b) 370 A c) 470 A d) 570 A

145. Maximum frequency out of traction converter in WAG9 loco. (D)
a) 102 HZ b) 112 HZ c) 122 HZ d) 132 HZ
146. Variation of resistance between two elements of a temperature sensor in a motor allowed (D)
a) 1.3 Ω b) 2.3 Ω c) 3.3 Ω d) 0.3 Ω
147. Quantity of grease required for TM re-greasing in WAP7/WAG9. (A)
a) DE side 400 grams and NDE side 130 grams as per ABB manual.
b) DE side only 400 grams as per ABB manual
c) NDE side only 130 grams as per ABB manual
d) NDE side only 150 grams as per ABB manual
148. Grease used in auxiliary motors of 3phase locomotives (B)
a) Servo gemRR5 b) Servo gem RR3 c) c Servo gemRR2 d) c Servo gemRR1
149. Lubrication Oil used in compressor of M/s. ELGI Model RR20100/RR20100 CG (M) (D)
a) Servo 75 b) Servo 65 c) Servo plus 100 d) Servo plus 150
150. Surge Comparison test on the stator of aux motor shall be conducted to detect (D)
A Turn to turn short B Improper coil connection C Open coil connection
a) A, B, C b) C, B, A c) B, A, C d) AC
151. Codal life of aux motor (A)
a) 15 Years b) 18 Years c) 16 Years d) 20 Years
152. Codal life of Speedo meter (A)
a) 15 Years b) 18 Years c) 16 Years d) 10 Years
153. Codal life of VCB (B)
a) 15 Years b) 18 Years c) 16 Years d) 20 Years
154. Full form of FDU is (B)
a) Friction development unit b) Fire detection unit
c) Force development unit d) Foundation disable unit
155. What is WRE module in BUR? (A)
a) Inverter module b) Inverter mobile c) Inverter batteries d) Inverter aux
156. What is G.G module in BUR? (B)
a) It is reflector b) It is a rectifier c) It is reachable d) It is discharge
157. Number of earth return brushes available in one brush holder WAG9 loco (B)
a) 02 b) 03 c) 04 d) 06
158. .What is the torque required for tightening of axle guide bolts. (D)
a) 540 N.M b) 340 N.M c) 240 N.M d) 640 N.M
159. In bearing 6312 Z suffix 'Z' stands for (A)
a) Bearing with a metal seal on one side, one side open. b) One side open
c) Metal seal d) Bearing with a metal seal
160. Compressor of M/s.ELGI Model RR20100/RR20100 CG (M) is (A)
a) 2 stage 3 cylinder compressor b) 3 stage 3 cylinder compressor
c) 1 stage 3 cylinder compressor d) 5 stage 3 cylinder compressor
161. What is the acceptable db loss range measured for fiber optic cable & optical cards? (B)
a) 13dBm to 16dBm b) 15dBm to 16bBM c) 15dBm to 18bBM d) 12dBm to 18dBm
162. LDS stand for? (B)
a) Local Diagnostic system b) Loco Diagnostic system c) Loco Digital system d) Loco Diagnostic set

163. DDS stand for (C)
a) Digital data system b) Double data set c) Diagnostic data set d) Dual data set
164. CCU stands for (A)
a) Convertor control unit b) conversation control unit
c) Component control unit d) Constant control unit
165. DBM stands for? (A)
a) Decibels/ milli watt. b) Decimal / milli watt.
c) Disable / milli watt. d) Discharge/ milli watt.
166. Unmodified torque arm bogie lug radius ... (D)
a) 4R b) 6R c) 7R d) 8R
167. .Modified torque arm bogie lug radius (B)
a) 10 R b) 15 R c) 20 R d) 25 R
168. Sequence of WAG9 loco Vertical load transferred to wheel set is (B)
1. Secondary springs 2.Bogie 3. Primary springs 4. Axle box
a) 2,3,4,1 b). 1,2,3,4 c). 4,2,3,1 d). 2,4,1,3
169. Sequence of load transferred from loco to load is (C)
1. Body 2. Bogie 3. Axle box 4. Traction link 5. Axle guide.
A). 1,2,3,4,5 B). 2,3,4,5,1 c). 3,5,2,4,1 d). 5,3,2,4,1
170. Axle guides available in WAG9 locos are (B)
a). 10 b). 12. C). 8 d) None of above
171. Journal diameter (axle of wheel set) on racer seating portion (D)
a)10.0.013 TO 120.058 b) 20.0.023 TO 110.068
c) 14.0.023 TO 110.060 d) 15.0.043 TO 150.068
172. Journal diameter (axle of wheel set) on thrower seating portion (C)
a) 150.126 TO 159.176 b) 120.146 TO 159.126
c) 170.146 TO 179.186 d) 160.176 TO 189.199
173. Lipped/plain racer inner diameter of axle box bearing (C)
a) 129.975 TO 130.00 b) 139.975 TO 180.00
c) 149.975 TO 150.00 d) 119.975 TO 160.00
174. Axle box housing Inner diameter (D)
a) 260 TO 270.046 b) 220 TO 240.046 c) 150 TO 210.046 d) 250 TO 250.046
175. What is the cleaner used for cleaning fiber optic connectors' tips? (B)
a) Acton b) Acetone. c) Axe tone d) Aces stone
176. Use of disc valves used in compressor is to -----compressed air (C)
a) Stop b) Allow c) Allow one side d) Exhaust
177. Signal Lamps working condition is observed in WAG9 loco during ----- (A)
a) Configuration b) AFL operation c) A9 operation d) none of the above
178. What is the probable cause for battery voltage becomes zero when MCP getting off in 3-Ø Loco (A)
a) 112 MCB tripped b) 112.1 MCB tripped c) 110 MCB tripped d) 100 MCB tripped
179. What is the probable cause for Main power getting off with BUR 2 & 3 isolation in IGBT BUR loco? (B)
a) MRB1 defective b) MRB2 defective c) SCMRB1 defective d) SCMRB2 defective

180. How many sensors available in Metallic AAL make SPM PG.? (B)
A) 1 b) 2 c) 3 d) 4
181. 126.5 Relay getting ON, when ---- switch operates in 3-Ø. (C)
a) ZPT b) ZBAN c) BL d) Simulation
182. 126.6 relay getting ON, when BL switch kept in -----position in 3-Ø. (B)
a). OFF b) D c)C d) None of the above.
183. In which make VCB, VCB holds on electrical supply only? (A)
a) BT b) AAL c) Schneider d) BHEL
184. How much current flows in earth fault relay of battery circuit, when no earth faults? (a)
a) 0 mA b) 100mA c) 150mA d) 218 mA
185. Earthing choke is connected to ----- wheel in 3-Ø loco. (A)
a)1 b) 6 c) 7 d) 12
186. In 3Ø MU locos, COCs to be opened and COCs to be closed in trailing loco (slave loco). (D)
a. 47; 70, 74 & 136 b. 70, 74 & 136; 47
c. 70 & 74; 136 & 47 d. 74, 70; 47 & 136
187. In 3Ø loco, AFL actions are (D)
a. TE/BE drops to 'O' b. Flasher Light works c. BZ-V-O-F sounds d. All the above
188. In 3Ø loco, constant speed control will de-activate automatically if BC pressure increased above Kg/cm². (D)
a. 1 b. 1.5 c. 0.25 d. 0.6
189. If BP is not charging beyond 3 kg/cm² in In 3Ø Knorr brake loco, keep auto brake valve(A9) in position for 10 seconds and bring back to Run. (B)
a. Release b. Full Service c. Emergency d. Minimum reduction
190. In 3Ø loco, purpose of 'Hotel load' is (D)
a. For working of MU b. For pneumatic supply to coaches
c. For working of coaches d. For electrical supply to complete formation of coaches
191. To apply parking brakes in 3Ø dead loco, press. side plunger of solenoid valve. (A)
a. Left b. Right c. Any plunger d. None of the above
192. In 3Ø loco, during loco brake test, ensure BC gauge shows kg/cm², BP gauge shows kg/cm² and PB gauge shows kg/cm². (B)
a. 3.5, 5 & 0 b. 3.5, 5 & 6 c. 0, 5 & 6 d. None of the above
193. In 3Ø loco, Constant speed control (CSC) will be de-activated automatically if BP pressure drops (with or without A9) more than kg/cm² (C)
a. 1 b. 1.5 c. 0.25 d. 0.6
194. In 3 phase locos, Harmonic filter resistances are cooled by (A)
a. Atmospheric air b. Blower c. Pneumatic pressure d. None of the above
195. In 3 phase locos, when parking brakes are released PB gauge shows Kg/cm² (C)
a. 5 b. 0 c. 6 d. 3.5
196. During loco brake testing WAG 9 or WAP7 loco should not to move up to KN. (B)
a. 100 b. 150 c. 300 d. 125
197. The pressure switch associated with working of Baby compressor is (A)
a. Pn 26 b. Pn 60 c. Pn 59 d. Pn 6

198. TM speed sensor is connected ----- card of Traction converter. (B)
a) ASC card b) ASC peri card c) NSC card d) NSC peri card

199. TE/BE meters is connected to ----- slot card of VCU in 3-Ø loco. (A)
a) E b) J c) o d) Q

200. DG indicates in 3-Ø loco is (A)
a) Bogie b) Roof c) Drivers cab d) Battery box

Fill in the blanks

1. In BT VCU, TCN Gateway installed on front plate for -----on Train Bus
Ans: WTB interface
2. Parts of BT VCU.
Ans: TCN Gateway, Temp sensor, Heat Exchanger, AX Module
3. In BT make IGBT SR, circulate the coolant to avoid corrosion to the cooling circuit for storage periods longer than -----. **Ans:** 3 months
4. In BT propulsion, DDUs are connected with VCU1 and VCU2 via -----.
Ans: Ethernet Communication
5. In BT propulsion, online and offline diagnostics interfaced on-----.
Ans: windows platform
6. In BT propulsion, the MVB field-bus is terminated at the extreme ends by the **MVB terminators.**
7. In BT propulsion, parts of SR are -----.
Ans: Converter module, Control module, Drive control unit, Expansion tank
8. In BT propulsion Converter control units are ----- **Ans:** DCU1 & DCU2
9. Abbreviation of TDS is----- **Ans:** Train Diagnostics System
10. DDS data can be taken from CCUO via----- **Ans:** Ethernet terminal
11. In BT propulsion SR-2,BUR 2 &3 are connected to----- **Ans:** VCU-2
12. In BT propulsion SR-1,BUR-1 are connected to ----- **Ans:** VCU-1
13. In BT propulsion VCB control is done by ----- **Ans:** VCU-1
14. In BT propulsion Pantograph control is done by ----- **Ans:** VCU-2
15. Abbreviation of TCMS is ----- **Ans:** Train Control & Management System
16. Abbreviation of WTB is ----- **Ans:** Wired Train Bus
17. TDS up loader software is used for ----- **Ans:** fault data uploading
18. In BT Propulsion, MCB 100 is located at left side wall of ----- **Ans:** Aux.converter BOX-2
19. Abbreviation of CCU is ----- **Ans:** Converter Control Unit
20. Abbreviation of CCUO is ----- **Ans:** Central Control Cubicle Operation
21. In BT Propulsion, Processing of faults and storage of fault messages is done by -----.
Ans: CCUO
22. Abbreviation of VIU is ----- **Ans:** Vehicle Interface Unit
23. Abbreviation of FPGA is ----- **Ans:** Field Programmable Gate Array
24. Abbreviation of TCU is ----- **Ans:** Traction Control Unit
25. In BHEL SR, Four Quadrant Controller and an Inverter each are controlled by -----.
Ans: DCU-1&3
26. A In BHEL SR, an Inverter and a Soft Crow Bar is controlled by ----- **Ans:** DCU-2
27. Interface between DCU and loco control is ----- **Ans:** VIU
28. In BHEL SR, DC link overvoltage is controlled by ----- **Ans:** DCU-2
29. Event or fault data in BHEL SR & BUR are called ----- **Ans:** Registrations.
30. In BHEL SR, Average switching frequency of IGBT is ----- **Ans:** 250 Hz
31. Frequency of Harmonic filter is ----- **Ans:** 100 Hz
32. In BHEL SR, IGBT rating is ----- **Ans:** 4500V/1200A
33. No. of IGBTs in Crow bar circuit of BHEL SR ----- **Ans:** Two
34. No. of power modules in BHEL IGBT SR ----- **Ans:** 09

35. Abbreviation of PMI in BHEL IGBT SR ----- **Ans:** Power Module Interface
36. Abbreviation of MFI in BHEL IGBT SR ----- **Ans:** MVB Fiber Interface
37. Total quantity of coolant needed to be filled in a BHEL traction converter(including heat exchanger & pipes)----- **Ans:** 115 Liters
38. In BHEL SR, the DC (bus) voltage of the power module is measured by -----
Ans: VMD Voltage Measurement and Detection board
39. Rating of BHEL SR line contactor ----- **Ans:** 1500V/1500A
40. In BHEL SR, Interface between Drive control unit & power module is -----
Ans: Power module Interface (PMI)
41. Control module that converts the electrical signals of the MVB bus to optical signals is -----
Ans: MVB-Fiber Interface (MFI)
42. Electrical interface between one or more traction drive controllers and a vehicle is-----
Ans: Vehicle Interface Unit (VIU)
43. Device that Interfaces between BHEL BUR & VCU using MVB bus is ----- **Ans:** ACI board
44. Rating of Inverter module in BHEL BUR is ----- **Ans:** 130KVA
45. Abbreviation of ACI is ----- **Ans:** Auxiliary Control Interface
46. In BHEL BUR Battery charger rating is ----- **Ans:** 12kW/111V/110A
47. Abbreviation of HDLC is ----- **Ans:** High-level data link control
48. In BHEL BUR, communication between PCBs, e.g. ACI and AMC is done by -----
Ans: HDLC
49. Abbreviation of ICP is ----- **Ans:** Interface, Control and Processing Board
50. Abbreviation of CTD is ----- **Ans:** Crowbar Thyristor driver