



दक्षिण मध्य रेलवे/SOUTH CENTRAL RAILWAY

मंडल कार्यालय/Divisional Office,
कार्मिक विभाग/Personnel Branch,
नांदेड मंडल/Nanded Division,
नांदेड/Nanded (MS)

संख्या./No.SCR/P-NED/210(a)/Con./Sel./JE[GS]/25%PQ/Elect./2022

दिनांक/Date:12.01.2023.

All Concerned

विषय/Sub: Selection for the post of Junior Engineer (GS) in Pay Matrix Level-6 (GP ₹ 4200/-) against 25% Promotional Quota in Electrical Department on NED Division.

संदर्भ/Ref: Notification issued under this office letter No.SCR/P.NED/210(a)/L2/JE(GS) /25%PQ dated 21.10.2022.

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In terms of S.C. No.100/2022 the 'Key' for the written examination for the selection to the post of Junior Engineer (GS) in Pay Matrix Level-6 (GP ₹ 4200/-) against 25% Promotional Quota in Electrical Department on NED Division held on today i.e. on 12.01.2023 [Thursday] at 14:00 Hrs at Conference Hall-2/DOC/NED is enclosed as Annexure-II. The list of employees who have attended the written examination is enclosed as Annexure-I.

The employees mentioned in the Annexure-I are advised to go through the Key and make a written representation, if any, against the 'Key' published and ambiguity in questions, duly following the conditions detailed below:

Representation, if any, should be made within 7 days (including intervening holidays) from the next day to the date of issue of this letter to the undersigned through their respective controlling officer i.e 19.01.2022 [Thursday]. No further time will be granted.

1. The Respective controlling officer may send the same to this office immediately, with conformation of identity of the examinee making the representation.
2. While making the representation the examinee should enclose the Authority for the same without which the representation will not be considered.
3. The decision of the Paper setting Authority after this exercise will be final and no further correspondence in this regard will be entertained.
4. Final Key will be published along with decision taken on the representation received aforementioned period.
5. Decision of the Competent Authority in case of discounting of any question or otherwise on account of 'Incorrect wording of questions' or 'all answers are wrong' will also be communicated along with publishing of final Key.
6. The concerned Branch officer shall furnish a 'Nil' statement if no representation are received.

(K. Ravi Kumar)

Divisional Personnel Officer [Co-ord]
For DRM/NED

Copy to:

1. APO/Engg./NED:- For information and necessary action to intimate candidates please.
2. Sr.DEE//M/NED:- For kind information and necessary action please.

S.No.	Question	Answer
1.	In house wiring the black wire indicates the (A) Phase (B) Neutral (C) Earth wire (D) Dead wire	[B]
2.	Instrument used for measuring the speed of rotating machines/appliances is (A) Lux meter (B) Tachometer (C) Micrometer (D) None above	[B]
3.	If a 60 W and 100 W lamps in series and are connected to a source of supply, which lamp will give more light (A) 100 W (B) 60 W (C) Both will give same light (D) None of the bulb will glow.	[B]
4.	Two lamps of 60 W and one of 100 W are connected in series to a supply 220 V, the current flowing in the circuit will be (A) 1A (B) 2A (C) 3A (D) 4A	[A]
5.	A 10 hp pump works for 10 hrs per day, monthly consumption will be (A) 223.8 (B) 2.23 (C) 22.38 (D) 2238	[D]
6.	The Visible, Audible, Partial discharge at the surface of conductor at high voltage is called – (A) Skin affect (B) Corona (C) Creep (D) None of these	[B]
7.	If the relay setting of 60/5 CT is at 3.75, then the tripping will be at (A) 60 Amp. (B) 45 Amp. (C) 30 Amp. (D) 50 Amp.	[B]
8.	Before starting the work on faulty circuit it should be ensured that A. The faulty portion has been isolated from the power supply B. The worker is strong enough to climb the pole C. The cable is not deep enough to dig D. None of the above.	[A]
9.	How many watts are in a hp? (A) 700 (B) 725 (C) 740 (D) 746	[D]
10.	The maximum demand of an industry, if trivector motor records 3600 KVA for 15 minutes and 3000 kVA for next 15 minutes over a recording cycle of 30 min is -----. (A) 3600 kVA (B) 3000 kVA (C) 3300 kVA (D) 600 kVA	[C]
11.	Active power consumption of motive drives can be determined by using one of the following relations. (A) $\sqrt{3} \times V \times I$ (B) $\sqrt{3} \times V \times I \times \cos\phi$ (C) $\sqrt{3} \times V \times I \times \cos\phi$ (D) $\sqrt{3} \times V \times I \times \cos\phi$	[D]
12.	A single phase induction motor is drawing 10 amps at 230 volts. If the operating power factor of the motor is 0.9, then the power drawn by the motor is (A) 2.3 kW (B) 3.58 kW (C) 2.07 kW (D) 2.70 kW	[C]
13.	The protective device to indicate the internal fault in a transformer is (A) Thermal relay (B) Buchholz relay	[B]

	(C) OVR (D) EFR	
14.	The ratio of kW to kVA is known as (A) Voltage regulation (B) power factor (C) Transformation ratio (D) None of the above	[B]
15.	No-load test on a transformer is carried out to determine (A) copper loss (B) magnetizing current (C) magnetizing current and loss (D) efficiency of the transformer	[C]
16.	Maximum permissible earth resistance for buildings is (A) 0.5 ohm (B) 1 ohm (C) 2 ohms (D) 8 ohms	[D]
17.	In pipe earthing, the minimum internal diameter for GI pipe should be (A) 30 mm (B) 40 mm (C) 50 mm (D) 60 mm	[B]
18.	Earthing arrangement for low voltage installations such as service buildings, public buildings should be inspected at an interval of (A) 3 months (B) 6 months (C) 9 months (D) 12 months	[B]
19.	Candela is the unit of which of the following? (A) wavelength (B) luminous intensity (C) luminous flux (D) frequency	[B]
20.	A reflector is provided to (A) protect the lamp (B) provide better illumination (C) avoid glare (D) all of the above	[D]
21.	If a DG set excessive smoke at full load, the probable cause may be (A) One or more cylinder not working (B) Poor quality of oil (C) Nozzle jammed (D) All of the above	[D]
22.	Primary filters in the fuel system of the DG set should be cleaned at every (A) 150 hrs (B) 200 hrs (C) 250 hrs (D) 300 hrs	[C]
23.	Which of the following is not a criteria of pump selection (A) Type of duty required (B) Details of head (C) Duration of availability of power supply (D) The look of pump.	[D]
24.	RPM of submersible pump set is (A) 440 (B) 1440 (C) 380 (D) 2800	[D]
25.	Pump set motor burns due to A. Single phasing B. Reverse phasing C. Over loading for a shorter period D. None of above.	[A]
26.	Automation of pump set is done to A. To limit the working of pumps B. To avoid the working of water C. To save the electrical energy	[D]

	D. To reduce the man power E. All of the above.	
27.	The motor of vertical shaft, 75 HP rating pump is. (A) Force air cooled (B) Natural air cooled (C) Water cooled (D) None of the above.	[C]
28.	For high flow requirement, pumps are generally operated in (A) parallel (B) series (C) any of the above (D) none of the above	[A]
29.	Angle of overhead electrical line crossing to railway track shall be A. Right angle B. Acute angle C. Obtuse angle D. Angle does not matter.	[A]
30.	The span of the OH electrical line crossing the railway track is restricted to (A) 100 m (B) 200 m (C) 300 m (D) 400 m	[C]
31.	Clearance of the lowest conductor vertical above the building for LT and MT lines should be (A) 4 ft. (B) 6 ft. (C) 8 ft. (D) 12 ft.	[C]
32.	The clearance between the conductor and pole for 11 kV lines, should be (A) 6" (B) 9" (C) 12" (D) 1'3"	[C]
33.	Electric energy charges from the social welfare organizations such as railway institute, community halls, clubs, et(C) is at A. Flat rate B. Fixed rate C. Average consumption D. The rate applicable to railway employee subject to maximum limit of consumption.	[D]
34.	The porters rest centers are treated as (A) Service building (B) Private building (C) Passenger amenity (D) None of the above	[A]
35.	As per Railway Board recommendations, the sweep of fans provided on platforms should be (A) 800 mm (B) 1200 mm (C) 1500 mm (D) 1800 mm	[D]
36.	True power in three-phase circuit in Kilowatt is A. $1.414 \times \text{volts} \times \text{amperes} \times \text{pf}/1000$ B. $1.73 \times \text{volts} \times \text{amperes} \times \text{pf}/1000$ C. $\text{Volts} \times \text{Amperes} \times \text{pf}/1000$ D. $\text{Volts} \times \text{Amperes} \times 1000/\text{pf}$	[B]
37.	The current rating of PVC insulated and PVC sheathed four core , armored aluminium cable of size 70 sq mm (laid in duct) is approximately	[A]

	(A) 115 amps ((B) 210 amps (C) 290 amps (D) 350 amps	
38.	In case the air gap in an induction motor is increased A. the magnetizing current of the rotor will decrease B. the power factor will decrease C. speed of motor will increase D. the windage losses will increase	[B]
39.	An induction motor is A. self-starting with zero torque B. self-starting with high torque C. self-starting with low torque D. non self-starting	[C]
40.	The synchronous speed of a 3- phase induction motor is given by the formula (A) $N_s = 120f/P$ (B) $N_s = 120P/f$ (C) $N_s = 120 f P$ (D) $N_s = f P / 120$	[A]
41.	The shaft, on which the rotor of an induction motor is mounted is made of (A) high speed steel (B) chrome vanadium steel (C) cast-iron (D) carbon steel (E) aluminium	[D]
42.	An induction motor has a rated speed of 720 r.p.m. How many poles has its rotating magnetic field? (A) 8 poles (B) 6 poles (C) 4 poles (D) 2 poles	[A]
43.	Synchronous speed is defined as A. the speed of a synchronous motor B. the actual speed at which a magnetic field rotates C. the speed of the rotor of an induction D. the speed of an induction motor at no motor load	[B]
44.	The insulating material for cables should (A) be acid proof (B) be non-inflammable (C) be non-hygroscopic (D) have all above properties	[D]
45.	When cell is fully charged, the positive plate becomes A. Lead peroxide B. Lead sulphate C. Spongy lead D. None	[A]
46.	Internal resistance of lead acid cell is mainly due to A. Size of plates B. Nature of electrolyte C. Distance between the plates D. All the above	[D]
47.	The codal life of lead acid TL/AC cells is	[A]

	(A) 4	(B) 3	(C) 2	(D) None	
48.	For VRLA Battery, every 1 degree C in temperature, the charge/float voltage is to be reduced by _____ per cell				[A]
	(A) 3 mv	(B) 5 mv	(C) 1 mv	(D) 6 mv	
49.	The specific gravity of the concentrated sulphuric acid is				[A]
	(A) 1.840	(B) 1.200	(C) 1.220	(D) 1.180	
50.	When the lead acid cell is recharged the specific gravity of the electrolyte				[A]
	(A) Increases	(B) Decreases	(C) As it is	(D) None	
51.	Inverters convert				[C]
	A. AC into DC B. Both a & b C. DC into AC D. None				
52.	Recommended Cut in speed of 4.5 KW TL alternator is by RDSO with MA RR unit _____				[A]
	A. 357 rpm B. 1100 rpm C. 600 rpm D. 2500 rpm				
53.	Number of V belts used for driving 110V 18KW & 25KW AC alternator is				[C]
	(A) 4	(B) 6	(C) 12	(D) None	
54.	As per the latest SMI ----- the voltage setting of alternator 4.5KW 110V for mail/express trains with VRLA batteries is				[B]
	A. 123+/-0.5V DC B. 128.5+/-0.5V DC C. 121+/-0.5V DC D. None				
55.	The insulation material recommended for alternator windings of 4.5 KW 110V shall be ----- class				[C]
	(A) A (B) B (C) F (D) None				
56.	The gap between two halves of axle pulley to be maintained is				[A]
	A. 3.0 +/-0.5 mm B. 6mm +/- 0.5 mm C. 4mm +/- 0.5 mm D. None				
57.	Non drive end bearing of 4.5 kw 120v 4.5kw TL alternator is				[A]
	(A) SKF 6309	(B) SKF NU311	(C) SKF 6200	(D)None	
58.	Field coils of 120VTL/AC coach alternator are connected in				[A]
	(A) Series	(B) Parallel	(C) Star	(D) Delta	

59.	Number of slots are available in stator for 3Phase ac winding in 4.5 KW 120V Alternator (A) 36 (B) 60 (C) 18 (D) None	[A]
60.	Generally the voltage setting of the alternator is to be set ----- At 1500rpm A. Full rated current B. Half rated current C. 2/3rd rated current D. None	[B]
61.	The cut in speed of 25kw alternator is not more than (A) 400rpm (B) 600rpm (C) 800rpm (D) None	[A]
62.	OVP provided with ERRU shall latch before output voltage reaches to (A) 145V (B) 150V (C) 135V+/-2V (D) none	[C]
63.	Input power of 110V BLDC 400mm sweep fan of CGL make (A) 24w (B) 38w (C) 32w (D) none	[A]
64.	The minimum clearance between the top of the battery and battery box for maintenance of cells shall have (A) 50mm (B) 150mm (C) 100mm (D) none	[B]
65.	The relative humidity for the human comfort zone is (A) 40 - 60% (B) 80 - 100% (C) 20 - 40% (D) None	[A]
66.	Formula for converting centigrade into foreign heat (A) 5/9 (F-32) (B) 9/5 (C +32) (C) 9/5 (F-32) (D) 5/9 (C +32)	[B]
67.	For summer air conditioning the relative humidity should not be more than (A) 40% (B) 60% (C) 75% (D) 90%	[B]
68.	Psychometric chart is A. The fundamental tool of air conditioning engineer. B. The science involving thermo dynamic properties of moist air C. The changes occurring in humid air when it is subjected to various air conditioning process can be trace(D) D. All the above.	[D]
69.	One ton of refrigeration is equal to (A) 200 Btu/ min (B) 100 Btu/ hr (C) 50 Btu/ hr (D) None.	[A]
70.	Capacity control of RMPU is (A) 50% to 100% (B) 25% to 100% (C) 75% to 100% (D) None	(B)
71.	The capacity of crank case heater of compressors used in RMPU AC Coaches (A) 50 W (B) 150 W (C) 200 W (D) None	(A)
72.	The starters used for 3 phase induction motors of RMPU coaches are (A) Direct on line starters (B) Star delta starters (C) Slip ring induction starters (D) None	(A)
73.	Fresh air required in side the AC coach for II Tire Sleeper and III Tire Sleeper per person is about	(B)

	(A) 0.7m ³ /min (B) 0.35 m ³ /min (C) 0.5 m ³ /min (D) None	
74.	Input voltage range to the under slung/on board inverter roof mounted AC coach 25 KVA inverter is. A. 90 to 140V DC with $\pm$ 15% ripple (103.5V to 154V) B. 70 to 170V DC with $\pm$ 15% ripple C. 80 to 200V DC with $\pm$ 15% ripple D. None	(A)
75.	What is the purpose of EBCR in LHB AC coach A. Give supply to the AC plant B. To give control supply to power panel in emergency C. To give supply to mobile chargers D. None	(B)
76.	What is the function of Insulation control relays in LHB AC coach A. Gives indication of higher insulation in panel B. Gives indication of lower insulation in panel C. Not indicate any thing D. Indicate supply position	(B)
77.	F-10 MCB (Double pole) 10A belong to which circuit in LHB AC coach A. Heater of unit-1 B. Heater of unit-2 C. Crank case heaters for CP 1.1 and CP 1.2 D. Crank case heaters for CP 2.1 and CP 2.2	(D)
78.	1st Alstam LHB coach designed and manufactured and commissioned on (A) 23 june 2003 (B) 23 june2004 (C) 23 june 2005 (D) None	(A)
79.	LHB type one RMPU power consumption capacity.....KW (A) 10.6KW (B) 12.6KW (C) 13.0KW (D) 13.6KW	(D)
80.	What is the abbreviation form of CAMTECH A. Central Advanced Management Technology B. Central Advance Management of Tracks C. Central Advanced Monitoring Technology D. Centre For Advance Maintenance Technology	(D)
81.	Who is EIG (A) PCEN (B) PCEE (C) PCME (D) PCPO	(B)
82.	The Ampere hour capacity of EMU battery is : (A) 80 Ah (B) 90 Ah (C) 100 Ah (D) 75 Ah	(B)
83.	The BDV for new filtered oil for transformer is : (A) 40 KV (B) 60 KV (C) 30 KV (D) None of the above	(A)
84.	When factory act 1948 came in force? (A) w.e.f. 1.1.1949 (B) w.e.f 1.2.1949 (C) w.e.f. 1.3.1949 (D) w.e.f. 1.4.1949	(D)
85.	Rule -3 of Service Conduct rule is related to A. General Conditions-devotion to duty integrity et(C) B. Demonstration by Railway Servant	(A)

	C. Employment of near relative; D. None of these.	
86.	Railway servant shall be entitled to (A) 15 days LAP in a Calendar Year (B) 30 days LAP in a Calendar Year (C) 20 days LAP in a Calendar Year (D) none of these	(B)
87.	Female Railway servant entitled for maternity leave for (A) 90 days (B) 120 days (C) 180 days (D) None of these	(C)
88.	Stores Directorate in Rly Board is under A. Member (Mech) B. Member (Elect) C. Member (Staff) D. Financial Commissioner	(A)
89.	The pre-check of the purchase order by accounts department is necessary if the value is More than A. Rs. 5,00,000/- B. Rs. 4,00,000/- C. Rs. 1,00,000/- D. above Rs. 7,00,000/-	(D)
90.	If an article sold for Rs 100 then there is a gain of Rs 20, which of the following is the gain percent? (A) 25% (B) 22% (C) 20% (D) 16 . %	(A)
91.	If $x \tan 45^\circ \sin 30^\circ = \cos 30^\circ \tan 30^\circ$, then x is equal to (A) $\sqrt{3}$ (B) $\frac{1}{2}$ (C) $\frac{1}{\sqrt{2}}$ (D) 1	(D)
92.	If 200 students filled the form for entrance test and 180 appeared in the test out of which only 70% have passed the test then the number of students who failed the test are (A) 68 (B) 54 (C) 58 (D) 65	(B)
93.	Q is directly proportional to $\sqrt{p}$ Q = 21 when p = 9, the value of Q when p = 81 is (A) 63 (B) 64 (C) 56 (D) 67	(A)
94.	Vande Bharat express is also known as? (A) Train 17 (B) Train 18 (C) Train 19 (D) Train 20	(B)
95.	Dutee Chand is associated with which Sports? (A) Athletics (B) Kabaddi (C) Cricket (D) Hockey	(A)
96.	First woman to become a chief minister of a state in India? A. Sheila Dixit B. Sushma swaraj C. Sucheta Kriplani D. Mamata Banerjee	(C)
97.	World Environment Day is observed on? (A) June 7 (B) June 5 (C) June 10 (D) June 3	(B)

98.	The taper on a shaft is indicated along the A. dashed line B. center line C. base line D. out line	(B)
99.	The pH value of neutral water is (A) 0 (B) 5 (C) 7 (D) 14	(C)
100.	In rapid sand filter the air binding is caused due to A. Negative pressure B. Water Pressure C. Vacuum Pressure D. Atmospheric Pressure	(A)
101.	Which chapter of the Constitution mentions about the Official Language of the Union? A. Chapter – 1 B. Chapter- 2 C. Chapter- 3 D. Chapter -4	(A)
102.	Which article of the Constitution of India mentions about the Official Language of the Union? A. Article - 112 B. Article -120 C. Article -340 D. Article - 343	(D)
103.	How many members of Rajya Sabha are there in the Parliamentary Committee on Official Language? A. 5 B. 10 C. 15 D. 22	(B)
104.	During which year the first amendment to the Official Language Act was made? A. 1964 B. 1965 C. 1966 D. 1967	(D)
105.	In which rule of the Official Language Rules have been mentioned about the imperative of issuing bilingual form manuals, codes, other literature related to process etc. ? A. Rule 9 B. Rule 10 C. Rule 11 D. Rule 12	(C)
106.	What is the periodicity of holding the meetings of Town Official Language Implementation Committee? A. Once in 3 months B. Once in 6 months C. Once in a year D. Once in 2 years	(B)
107.	What is the name of the scheme launched to award original fiction / story collection and novel writing ? A. Maithilisharan Gupta Award Scheme B. Munshi Premchand Award Scheme C. Makhanlal Chaturvedi Award Scheme D. Bharatendu Harishchandra Award Scheme	(B)

108.	Which of the following honors are given to the General Managers and above level officers for doing excellent work in the Official Language Hindi ? A. Kamlapati Tripathi Rajbhasha Gold Medal B. Rail Manthri Rjbhasha Silver Medal C. Rajbhasha Gourav Purskar D. Rail Manthri Rjbhasha Gold Medal	(A)
109.	According to the annual program issued by the Rajbhasha Department, Ministry of Home Affairs, what percentage of sections are required to be nominated for doing cent percent work in Hindi? A. 20 B. 30 C. 55 D. 100	(A)
110.	What should be the order of announcements at Railway stations? A. Hindi, regional language, English B. Hindi, English, Regional language, C. Regional language, Hindi, English D. Regional language, English, Hindi	(C)