

वरिष्ठ मंडल सिगनल एवं दूरसंचार अभियंता का कार्यालय
पूर्वी रेलवे
हावड़ा

OFFICE OF THE SENIOR DIVISIONAL SIGNAL & TELECOM ENGINEER
EASTERN RAILWAY
HOWRAH

पे मैट्रिक्स लेवल -7 और 6 में इंस्ट्रक्टर (टेलीकॉम) के पद के लिए लिखित परीक्षा
Written Test for the Post of Instructor (Telecom) in Pay Matrix Level-7 & 6

दिनांक / Date:- 30.03.2023

समय / Time:- 2 Hrs

पूर्ण अंक / Full Mark:-100

निर्देश
INSTRUCTIONS

1. 110 प्रश्नों में से किन्हीं 100 प्रश्नों के उत्तर दीजिए
Out of 110 questions, answer any 100 questions.
2. प्रत्येक प्रश्न 01 (एक) अंक का है
Each question carries 01 (one) mark.
3. नकारात्मक अंकन 1/3
1/3rd negative marking.
4. किसी प्रकार का सुधार उदा. यदि कोई सुधार किया जाता है तो किसी भी तरह से उत्तर को काटने, ओवरराइट करने, मिटाने, संशोधित करने की अनुमति नहीं है, उत्तर का मूल्यांकन बिल्कुल नहीं किया जाएगा
Any type of corrections e.g. Cutting, Overwriting, Erasing, modifying answer in any way is not permitted in case any correction is made that answer shall not be evaluated at all.
5. उत्तर पत्रक में अपना नाम न लिखें या ऐसा कुछ भी चिन्हित न करें जिससे आपकी पहचान का पता चल सके अन्यथा आपकी उम्मीदवारी रद्द कर दी जाएगी
Do not write your name or mark anything which can disclose your identity in the answer sheet otherwise your candidature will be cancelled.
6. प्रत्येक प्रश्न के सामने चार विकल्प दिए गए हैं- (A), (B), (C) और (D) जिनमें से एक सही उत्तर है। उम्मीदवार को सही विकल्प चुनना होगा
There are four options- (A), (B), (C) & (D) given against each question out of which one is correct answer. Candidate will have to choose the correct option.

1. To joint quad cable with thermo shrink joint, markers M1 and M2 should be placed at a distance of
 - a. 50 mm
 - b. 100 mm
 - c. 150 mm
 - d. 200 mm
2. Which of the following are called universal gates?
 - a. Nand and Not Gate
 - b. Not and Nor Gate
 - c. Nand and Nor gate
 - d. Nand, Nor and Not Gate
3. Before energization of new power lines of 11 KV and above having telecom lines in the area, clearance of which committee is required?
 - a. WPC
 - b. DOT
 - c. PTCC
 - d. PAC
4. Safe limit for induction due to Low Frequency Induction due to short circuit fault is
 - a. 220 V
 - b. 310 V
 - c. 430 V
 - d. 250 V
5. Railway administration can give permission for temporary overhead telecom alignment for a temporary period
 - a. not exceeding 3 months
 - b. not exceeding 1 month
 - c. not exceeding 2 month
 - d. not exceeding 4 months
6. 4 Wire operation which can be converted into 2 Wire operation by provision of
 - a. Phantom Circuit
 - b. Buffer circuit
 - c. Hybrid circuit
 - d. Leak Amplified
7. RC button on control office equipment is used for
 - a. Repeating last transmitted station code
 - b. To reset the system
 - c. For row/column frequency check
 - d. For cancellation of code
8. The CCEO is as per RDSO Specification
 - a. RDSO/SPN/TC/66/2007
 - b. RDSO/SPN/TC/66/2009
 - c. RDSO/SPN/TC/68/2007
 - d. RDSO/SPN/TC/68/2009
9. The TWA unit is used when the number of telephones required at a way station is more than
 - a. 2
 - b. 4
 - c. 6
 - d. 8
10. Each TDCT is connected to MTWE with a twisted pair having a loop resistance of less than
 - a. 900 ohm
 - b. 1200 Ohm
 - c. 700 ohm
 - d. 1400 ohm
11. Routing protocol used for VOIP is
 - a. TCP/IP
 - b. UDP
 - c. OSPF
 - d. OMRS
12. DTMF signaling code level shall be between 0 dBm to - 7dBm across a load of
 - a. 600 ohms
 - b. 500 ohms
 - c. 400 ohms
 - d. 300 ohms
13. The full form of PTZ Camera is
 - a. Pan, Tilt & Zoom Camera
 - b. Pan, Tilt & Zonal Camera

- c. Pan, Transmission & Zonal Camera
 - d. Passenger Transfer Zonal Camera
14. It is desirable to provide 1.4 mm Quad cable in block sections longer than
- a. 12 kms
 - b. 10 kms
 - c. 8 kms
 - d. 15 kms
15. 0.5 mm conductor Dia twisted Pair PLJF is used for
- a. Subscriber's connection up to 3 kms
 - b. Subscriber's connection up to 5 kms
 - c. Subscriber's connection up to 7 kms
 - d. Subscriber's connection up to 2 kms
16. Cable markers shall be provided all along the route at a nominal interval of
- a. 50 m
 - b. 75 m
 - c. 25 m
 - d. 100 m
17. Outside station limits, the telecom cable shall generally be laid at a standard distance from ____ from centre of the nearest track
- a. 5 m
 - b. 10 m
 - c. 15 m
 - d. 20 m
18. The bending radius for the cable shall in no case be less than ____ the diameter of the cable in case of aluminum sheathed armored cables
- a. 20 times
 - b. 30 times
 - c. 40 times
 - d. 50 times
19. MPLS works in between OSI
- a. Data link layer and Network layer
 - b. Physical layer and Data link layer
 - c. Network Layer and Transport Layer
 - d. Transport Layer and Application Layer
20. The MPLS header is composed of
- a. 8 bits
 - b. 16 bits
 - c. 32 bits
 - d. 64 bits
21. Full form of SIP is
- a. Session Integration Protocol
 - b. Session Initiation Protocol
 - c. Session Intermediate Protocol
 - d. Sub Integration Protocol
22. Inspection of Telephone Exchange is to be done by SSE and JE
- a. Monthly and Quarterly
 - b. Quarterly and Monthly
 - c. Quarterly
 - d. Monthly
23. Quad cable is not required to be loaded when
- a. Amplifier-Equaliser system is not used
 - b. Amplifier-Equaliser system is used
 - c. Always needs loading
 - d. None of the above
24. Input impedance of VF Amplifier shall be
- a. 470 Ohm $\pm 10\%$
 - b. 470 Ohm $\pm 5\%$
 - c. 600 Ohm $\pm 10\%$
 - d. 600 Ohm $\pm 5\%$
25. A Zener Diode is operated in
- a. Both Forward and Reverse characteristic region
 - b. Only Forward characteristic region
 - c. Only Reverse characteristic region
 - d. None of the above

26. 10Base-T is implementation on

- a. Co-axial cable
- b. UTP/STP
- c. OFC
- d. Wireless

27. For a 200 volt to 4400 volt step up transformer the turn ratio is

- a. 44
- b. 24
- c. 20
- d. 22

28. 2 watts is equal to

- a. 35dBm
- b. 33dBm
- c. 31dBm
- d. 32dBm

29. The OSI seven layered hierarchy is used for defining the networks. Layer 4 is defined as

- a. Network Layer
- b. Session Layer
- c. Data Link Layer
- d. Transport Layer

30. Wave length of Ultra High Frequency is

- a. 1000-100 cm
- b. 100-10 cm
- c. 10-1 cm
- d. 1-10 mm

31. Unbalanced co-axial cable used in 25W VHF set has impedance of

- a. 25 ohm
- b. 50ohm
- c. 75 ohm
- d. 100 ohm

32. VHF frequency allotted to mechanical department is ____ MHz

- a. 148.600
- b. 148.100
- c. 149.750
- d. 147.975

33. For the preparation of the main OF cable route plan ____ should be prepared

- a. 3 Km chart
- b. 5 Km chart
- c. 7 Km chart
- d. 10 km chart

34. The end to end loss in OFC should not exceed ____ at 1550 nm

- a. 0.20db/Km
- b. 0.25db/Km
- c. 0.30db/Km
- d. 0.40db/Km

35. The end to end loss in OFC should not exceed ____ at 1310 nm

- a. 0.30db/Km
- b. 0.25db/Km
- c. 0.40db/Km
- d. 0.50db/Km

36. Sectional Supervisor should measure battery voltage of OFC

- a. Weekly
- b. Fortnightly
- c. Monthly
- d. Quarterly

37. Duct Integrity Test (DIT) is to be carried before OFC cable

- a. Laying
- b. Blowing
- c. Trenching
- d. Testing

38. Boolean expression $Y = X+X$ is

- a. 2X
- b. X
- c. 0
- d. 1

39. Intrinsic impedance of free space is
a. 270Ω
b. 370Ω
c. 377Ω
d. 277Ω
40. SCADA system is operated through _____ control circuit.
a. Traction Loco
b. Remote
c. Section
d. Traction Power
41. Mixer is used to connect ____ device
a. Output
b. Input
c. Output/Input
d. None
42. The power transfer is maximum in ____
a. Impedance matching
b. Voltage Matching
c. Current Matching
d. Inductance Matching
43. In the normal operating conditions sound pressure level is ____ dB
a. 60 to 70 dB
b. 70 to 80 dB
c. 80 to 90 dB
d. 90 to 100 dB
44. Amplifiers are rated at some specified output in watts with a declared harmonic content, of about ____
a. 5
b. 10
c. 15
d. 20
45. _____ type loud speaker is an indirect radiator
a. Horn
b. Cone
c. Bar
d. Square
46. _____ microphones require polarizing voltage
a. Dynamic
b. Gooseneck
c. Condenser
d. Ribbon
47. The frequency Bands _____ MHz for TCAS are allotted in Indian Railways
a. 146-163
b. 424-430
c. 876-915
d. 370-430
48. The frequency Bands _____ MHz for TETRA are allotted in Indian Railways
a. 146-163
b. 424-430
c. 876-915
d. 370-430
49. Address space of IPV4 is approximately
a. 3.29 Billion
b. 4.29 Billion
c. 4.79 Billion
d. 3.79 Billion
50. Special IP 127.0.0.0/8 represents
a. addresses used to communicate with the local network
b. loopback addresses
c. link-local addresses
d. None
51. Full form of IANA is
a. Internet Assigned Numbers Authority
b. Intranet Assigned Numbers Authority
c. Internet Association Numbers Authority
d. Intranet Association Numbers Authority

52. Wi-Fi networks operate using radio frequency (RF) technology, in the free band mostly at _____ in public band
- 3 GHz and 6GHz
 - 2.4 GHz and 5GHz
 - 1 GHz and 3GHz
 - 0.5 GHz and 1GHz
53. Emergency telephone socket posts shall be painted with alternatively
- black and white paints
 - black and red paints
 - yellow and black paints
 - Aluminum and yellow paints
54. ART equipments are to be periodically checked by ASTE/DSTE once in
- A month
 - 3 months
 - 6 months
 - 12 months
55. Full form of IVRS is
- Interactive Voice Response System
 - Interactive Video Response System
 - Interactive Voice Ready System
 - Interactive Voice Radio System
56. The information's displayed on the coach guidance display boards should be clearly visible from _____ under normal ambient conditions
- 50 to 75 mtrs.
 - 70 to 75 mtrs.
 - 100 to 125mtrs.
 - 200 to 225 mtrs.
57. The accuracy of the Clock should be better than
- + 3 Sec. per week
 - + 4 Sec. per week
 - + 5 Sec. per week
 - + 6 Sec. per week
58. In GSM-R, interface between MSC and VLR is called
- A
 - B
 - C
 - D
59. Diameter of G.I. wire connecting Lightning spike to earth electrode should be
- 6 mm
 - 8 mm
 - 10 mm
 - 12 mm
60. The earth electrodes shall be directly driven in the earth upto a depth of atleast
- 2 meters
 - 2.5 meters
 - 3 meters
 - 3.5 meters
61. When more than one electrode is used, the separation of the electrodes shall be about
- 2 meters
 - 3 meters
 - 4 meters
 - 5 meters
62. Low voltage lightning discharger of nominal rating of ____ shall be provided across the 230 V mains power supply
- 550 V
 - 650 V
 - 750 V
 - 850 V
63. When diameter of any conductor increases, its resistance
- Increases
 - Decreases
 - Remains Same
 - None

64. When length of any conductor increases, its resistivity
- Increases
 - Decreases
 - Remains same
 - None
65. The radio links used in GSM-R uses
- TDMA
 - FDMA
 - Both FDMA & TDMA
 - CDMA
66. Base station controller performs which of the following task in GSM-R
- Radio channel allocation
 - Radio channel monitoring
 - BTS supervision
 - All of the above
67. Full form of EIR used in GSM-S is
- Equipment Identifier Register
 - Equipment Identity Register
 - Equipment Identity Radio
 - Equipment Identity Radar
68. Railway is using which of the following band for VSAT communication
- C band
 - NC Band
 - Ku band
 - None
69. How many geo synchronous satellites can be used for full earth coverage
- 2
 - 3
 - 4
 - 5
70. Which one of the following is not a guided medium of transmission?
- The atmosphere
 - Coaxial cable
 - Fiber-Optic cable
 - Twisted-pair cable
71. _____ method allows a large number of selectable and independent user channels to coexist single optical fiber link?
- PCM
 - CDM
 - TDM
 - EDM
72. A step-index fiber has specified parameters for refractive index of fiber core and cladding as 1.50 and respectively. Its acceptance angle will be approximately
- 10°
 - 20°
 - 15°
 - 25°
73. A typical optical fiber cable has specified values of $n_1 = 1.82$ and $n_2 = 1.73$. The critical angle of incidence is calculated as
- 1.81°
 - 18.1°
 - 71.90°
 - 0.95°
74. Emergency control communication socket has six pin in which pin no 3&4 is for
- Auto Phone
 - Signaling pair
 - Receive pair
 - Trans pair
75. Typical optical wavelength, for which chromatic dispersion and fiber losses are almost zero, is
- 1552.52nm
 - 1560.606nm
 - 1539.766nm
 - 1332.45nm

76. The axial refractive index of the graded-index profile fiber core is specified as 1.50. If the maximum relative refractive index difference is 1%, then the index of refraction of the cladding is
- 1.50
 - 1.485
 - It will depend on the radius of the core
 - It will depend on the profile parameter
77. In a first-generation communication system, the operating region is near _____
- 0.8 Micrometer
 - 1.8 Micrometer
 - 1.0 Micrometer
 - 2.0 Micrometer
78. What are the components of DWDM?
- Mux, Demux
 - EDFA, OADM
 - Laser transmitters, highly sensitive receivers
 - All of the above
79. An EDFA works based on which concept?
- Stimulated emission
 - Thermionic emission
 - Photoelectric emission
 - Electron emission
80. What is the disadvantage of using surface-emitting LEDs?
- Modulation bandwidth is high
 - Lifetime is low
 - Modulation bandwidth is low
 - Both a and c
81. How many members are there in the Parliamentary Committee on Official Language?
- 30 members
 - 20 members
 - 25 members
 - 35 members
82. Section 7 of the Official Languages Act, 1963 is concerned with which one of the following?
- Implementation of official language in Departments
 - Optional use of Hindi or official language in judgement etc., of High Courts
 - Implementation of official language in central government offices II
 - Power to make rules
83. The Committee of Parliament on Official Language submits its report to whom?
- Vice President
 - Home Minister
 - Prime Minister
 - President
84. Which sub-committee of the Committee of Parliament on official language carries out inspection of the offices of the Ministry of Railways
- 3rd Sub-Committee
 - 1st Sub-Committee
 - 5th Sub-Committee
 - 2nd Sub-Committee
85. Under which rule the definition of an employee passing of working knowledge in Hindi is given?
- Under Rule 6
 - Under Rule 10 of Official Language Rules 1976
 - Under Rule 8
 - Under Sub - Rule (1) of Rule 5
86. What are the three regions classified under Official Language Rules 1976?
- East, West and North
 - A, B & C
 - 1, 2 & 3
 - F, G & H
87. Which article of the Part-VI of the constitution has the provision dealing with policy principles of the official language?
- Article 230
 - Article 111
 - Article 220
 - Article 210

88. On which date was Part-XVII of the constitution passed in Parliament?
- 26.01.1950
 - 14.09.1949
 - 15.09.1949
 - 14.09.1950
89. Who was the First Chairman of the Official Language Commission?
- B. J. Kher
 - Om Mehta
 - Lalit Narayan Mishra
 - G.B. Pant
90. Which form of numerals is to be used for official purposes of the Union?
- Roman numerals form
 - International form of Indian numerals
 - Devanagari numbers only
 - Basic form of Indian digits
91. Which language was included in the Eighth Schedule by the 21st Amendment to the Constitution?
- Nepali
 - Urdu
 - Sindhi
 - Hindi
92. Maithilisharan Gupt Award Scheme is given for?
- For story Writing
 - For collection of Poetry/Ghazal
 - For writing Novel
 - For technical Book writing
93. What is the amount of the second prize awarded under Maithilisharan Gupt Award Scheme?
- 7,000/-
 - 15,000/-
 - 10,500/-
 - 10,000/-
94. Rail Yatra Vrittant Award Scheme is meant for?
- For Railway Officers
 - For all Indian Citizens
 - For Hindi writers
 - For Railway Employee
95. How many prizes are laid out for Railway Minister Hindi Essay Competition?
- 1 Prize only non-gazttd
 - Total 4 awards , 2 for Gazetted and 2 for non-gazatted
 - Total 2 awards , 1 for Gazetted and 1 for non-gazatted
 - None of these
96. Which is the first platform to launch 'UPI LITE payments'?
- MI Pay
 - Bharat Pay
 - Google Pay
 - Paytm Payments Bank
97. As per IMF, which country has the potential to contribute 15 per cent of the global growth in 2023?
- India
 - France
 - China
 - Brazil
98. Which Ministry implements the 'Pradhan Mantri Bhartiya Janaushadhi Pariyojana'?
- Ministry of Housing and Urban Affairs
 - Ministry of Health and Family Welfare
 - Ministry of Chemicals and Fertilisers
 - Ministry of Rural Development
99. Central Board of Irrigation and Power (CBIP) award was conferred on which institution?
- GAIL
 - ONGC
 - REC
 - NTPC
100. Which Union Ministry implements the 'Swadesh Darshan 2.0 programme'?
- Ministry of Railways
 - Ministry of Home Affairs
 - Ministry of Culture
 - Ministry of Tourism

101. TLMAL is a joint venture between India's Tata Group and which country's counterpart?
- Japan
 - USA
 - France
 - Israel
102. Indian Railways launches 'Rail Post Gati Shakti Express Cargo Service' along with which institution?
- LIC
 - Blue Dart
 - DMRC
 - India Post
103. Consider the following statements:
- End of Train Telemetry is a communication equipment.
 - Linke Hofmann Busch coaches were developed with French assistance.
 - Vistadome is a state-of-the-art coach.
 - Indian Railways' Research Design & Standards Organization (RDSO) has become the nation's first institution to be declared as Standard Developing Organization (SDO).
- Which of the statement given above is/are correct?
- Only 1, 3 & 4
 - Only 1, 2 & 3
 - Only 1, 2 & 4
 - Only 2, 3 & 4
104. Indian Railways introduces 'Garvi tour' under Ek Bharat Shrestha Bharat Scheme to showcase heritage of which state?
- Uttarkhand
 - Gujarat
 - Rajasthan
 - Punjab
105. The Indian Railways introduced a Bharat Gaurav Deluxe Tourist Train to showcase the heritage of which country?
- Kerala
 - Goa
 - Gujarat
 - Assam
106. Which railway station has been finally renamed as Banaras by North Eastern Railways?
- Dabhoda Railway Station
 - Adi Saptagram Railway Station
 - Manduadih Railway Station
 - Bargarh Road railway Station
107. Which state has got the electric train for the first time in March 2023?
- Mizoram
 - Meghalaya
 - Manipur
 - Tripura
108. Which of the following railway launched the "One station One product" initiative?
- South Eastern Railway
 - South Central railway
 - East Cost Railway
 - Western Railway
109. The railway line was established during the region of which Governor-General in India?
- Lord Curzon
 - Lord Lytton
 - Lord Dalhousie
 - Lord Mountbatten
110. Indian Railways first pod hotel was inaugurated at which of the following railway stations in November 2021?
- Howrah Railway Station
 - Mumbai Central Railway Station
 - Chennai Central Railway Station
 - Thiruvananthapuram Central Railway Station.