

QUESTION BANK FOR JE(TELE) LDCE

- 1) What are the basic requirements of PCM system? Explain about sampling?
- 2) What is a frame and multi-frame? Explain about multi-frame?
- 3) Explain working of SPC exchange with a functional block diagram
- 4) Draw the basic block diagram of an ELECTRONIC TELEPHONE and explain its working.
- 5) List out the features of any electronic exchange and explain any five features
- 6) What are the different types of modulation techniques and explain balance modulator?
- 7) Explain about positive and negative feed back? Explain advantages of negative feedback in amplifiers
- 8) Write short notes on any Three
 - i) Phase lock loop
 - ii) Automatic gain control (AGC)
 - iii) Varactor Diode
 - iv) Step Recovery diode
 - v) Mixer in Receiver
- 9) What are the periodical tests to be carried out on underground cables and give the accepted value?
- 10) Write the quad allocation for 6-quad cable and give its electrical characteristics?
- 11) Explain the working of Section Control in RE area with the help of a Schematic diagram?
- 12) Draw the simplified circuit diagram of 2W control telephone and explain its working?
- 13) Draw the block diagram QPSK modulator and explain briefly?
- 14) Explain the call processing in SIEMENS 4000 Electronic Exchange?
- 15) Draw the block diagram of SIEMENS 4000 Electronic Exchange and briefly explain each block?
- 16) Explain briefly about the difference circuit cards used in SIEMENS 4000 Electronic Exchange?
- 17) Write short notes:
 - i) Two frequency plan ii) fresnel zone. Iii) folded dipole antenna
 - iv) K-factor.

- 18) Draw the functional block diagram of SPC exchange and mention the working of Each block.
- 19) Explain call processing in any telephone exchange.
- 20) Draw the block diagram of push button telephone and explain each block.
- 21) List out the special features of electronic exchange.
- 22) What are the periodical tests to be carried out for U/G Telecom cable?
- 23) What are the different types of cable joints used for Quad cable?
- 24) How Telecom cable is protected on culverts and bridges?
- 25) What are the precautions to be taken while cable laying?
- 26) What daily maintenance you will carry out for diesel engine?
- 27) Write five advantages of SMPS over conventional power supply?
- 28) Explain the function of anyone of the microphone with necessary diagram and also explain its characteristics?
- 29) What are the requirements needed to install a PA system for platform announcement?
- 30) Briefly explain the PA system arrangements for conference hall.
- 31) Give the list of materials that are kept in ARTs ?
- 32) Give the periodicity of testing BD SPLs by different staff ?
- 33) What are the arrangements made at accident spot when the accident occurs in underground cable area?
- 34) What is the essential difference between ISDN and normal telephone system? Explain briefly BRI, PRI and NT.
- 35) What are the advantages of ISDN?
- 36) What are the faults in PRS system and what are the different types of tests to be conducted to isolate the faults?
- 37) Explain IVRS system with a simple block diagram?

Write short notes on:

a) Statistical Multiplexer.

b) Modem

c) LDR

d) Router.

38) Explain briefly about Cards in Siemens exchange.

39) What is MDF (Main Distribution Frame)? What are the requirements of MDF?

40) Explain principle and operation of a dynamic microphone with a neat diagram.

41) What is the need for matching in PA system. Explain voltage matching method with necessary diagram.

42) Explain platform announcement system for a 4 Nos of platforms of 1 KM each.

43) What is meant by UPS? Name the three types of UPS and explain any one of them with block diagram? Give its uses?

44) What are the advantages of SMPS over linear power supply? Explain briefly working of SMPS with block diagram.

45) Write short notes on:

a) Power supply arrangement at OFC Hut.

b) Difference between three types of UPS

c) Voltage regulator

d) VRLA battery

e) Initial charging of **lead acid battery**

46) What are the advantages and disadvantages of SMPS over conventional power plants?

47) What are the maintenance requirements for conventional lead acid batteries?

48) Write the different types of battery charging and where they are used?

49) What are the precautions to be taken for battery room?

50) Write the procedure of initial charging of a lead acid battery and write the precautions to be taken during charging?

51) Write the maintenance to be carried out for lead acid battery? Explain how you will attend a sulphated lead acid cell?

- 52) Write what precautions you will take to avoid defects in lead acid battery? Draw the simple type of battery charger block diagram and explain function of each stage?
- 53) Explain with a neat sketch how the tapping for a way station is done in a 4- wire DTMF Control communication system.
- 54) Explain with a block diagram the working of DTMF decoder used in way station.
- 55) Explain the working of an auto dialling system and how it is used in control working?
- 56) What are the different types of main telecom cable joints used in RE area? Explain the function of each joint.
- 57) What are the periodical tests to be conducted in RE main telecom cable?
- 58) What are the precautions to be taken for cable jointing?
- 59) Draw and explain the functional block diagram of SPC Exchange.
- 60) What do you know about electronic exchanges and different circuits used in any electronic telephone exchange? Briefly explain.
- 61) Explain what do you understand by Conference facility in an exchange.
- 62) What are the functions of MDF?
- 63) What are the protection arrangements done in an exchange?
- 64) What would be the role of a railway servant in the case of train accident, when he/she is travelling in the same train?
- 65) What would be the role of the testroom during an accident of passenger train?
- 66) Why earth is required ? Give five points in support of your explanation.
- 67) Explain with schematic diagram the principle of SMPS based power plants.
- 68) What is surge? And what are its causes?
- 69) Explain about ring earth system.
- 70) What are the classes of SPDs ? And explain about each protection.
- 71) Mention the characteristics of good earthing system.
- 72) What is chemical earthing?
- 73) What is Central Control office?
- 74) Explain about Emergency control circuit with a simple sketch.
- 75) Explain the working principle of DTMF way station equipment with a block diagram.

76) Mention the OFC based control communication systems you know and explain about any one with a diagram.

77) Briefly explain about the following:

a. Voice data logger

b. SCADA

c. ISDN

d. DECT

78) Write down different cards of TJ100MC-1 in STM-1 equipment.

79) What are the advantages of SDH system?

80) Draw the System Architecture for WEBFIL Flexi mux with its Modules and Cards

81) Write down the Basic Requirements of PCM system.

82) What are the advantages of ISDN exchange?

83) What are various components used in IP based CCTV surveillance system.

84) Draw the connectivity diagram of IPIS system of a station.

85) Explain the working principle of dynamic microphone.

86) Write short notes on Woofer and Tweeter.

87) Explain direct radiator and indirect radiator in terms of loud speaker?

88) Write short notes on the following:

a) Switch board cable

b) Field Service cable

c) Double drop wire

d) Cable termination box

e) Shrinking of the sleeve

f) Krone terminations/IDC connectors

89) Explain what are the types of tests to be carried out on underground cables, before and after laying?

90) What are the types of faults that can occur in a underground cable? Explain them, with probable causes?

91) Describe the method of measurement of earth resistance.

92) Explain about the construction of a Lead Acid cell with a neat diagram?

- 93) What is meant by “Efficiency” of a secondary cell? What are the three ways of expressing efficiency & write about them briefly?
- 94) What is VRLA battery? Give its advantages over conventional Lead Acid cell?
- 95) What care you have to take regarding the Lead Acid battery to extract full life from it?
- 96) What are the standard tests to be conducted on Lead Acid Battery and explain significance of each test?
- 97) Briefly explain about the following drawbacks in Lead Acid Cells.
- Sulphation
 - Buckling
 - Internal short circuit
 - Reverse voltage
- 98) What is Battery charging? Explain the different methods of charging?
- 99) What is “Initial charging”? Explain the procedure & precautions?
- 100) What are the different types of charging adopted in case of SMF batteries? Explain them with precautions?
- 101) Write the procedure of keeping discharged SMF batteries in unused condition?
- 102) Explain the principle of working of DC-DC converter with a diagram?
- 103) Explain the operation of SCR type DC-DC converter with a diagram?
- 104) What are the performance requirements of a DC-DC converters?
- 105) What is Inverter? Explain the working of a simple DC-AC inverter with a circuit diagram?
- 106) What is the principle used in 500 Watts MOSFET based Inverter? Explain with a block diagram?
- 107) Write short notes on,
- Mains sampling circuit
 - Error sampling circuit
 - Temperature monitor circuit
 - Battery monitor circuit
- 108) Write the four requirements of mains voltage stabilizer?
- 109) Explain the working of a Thermister voltage stabilizer, with a circuit diagram?

- 110) Explain how voltage is stabilized automatically in a Ferro resonant type regulator?
- 111) Write the features of Ferro resonant type voltage regulator?
- 112) Explain the operation of a constant voltage transformer?
- 113) What is the necessity of UPS? Mention the types of UPS?
- 114) Explain the working of a On-Line UPS with a block diagram and write its advantages and disadvantages?
- 115) Explain the principle of working of a Off-Line UPS with a block diagram and write its advantages?
- 116) Write the differences between the three types of UPS?
- 117) Give the specifications of UPS for indenting?
- 118) What is photo voltaic effect?
- 119) What is "Solar cell"? How it is made? Explain how electric current is generated by a Silicon solar cell?
- 120) What are the advantages of "Solar cell" over conventional cell?
- 121) Write short notes on
- Gallium Arsenide Solar cell
 - Cadmium Sulphide Solar cell
 - Solar panel
 - P V array
- 122) Show the typical arrangement of power supply for large loads with a block diagram and explain its working?
- 123) What are the advantages of optical fibre cables over copper cable?
- 124)What is the basic principle of transmission in optical fibre cables ?
- 125)What is difference between Refraction and Reflection ?
- 126)What is total internal reflection?
- 127)What are the differences between multimode and single mode fibre?
- 128)What is difference between the scattering and absorption?

- 129) List out different types of Fiber optic connectors available in market.
- 130) Explain the function of an OLTE in Optic-Fiber-System?
- 131) What are the advantages of Optic fiber cable over the conventional cable system?
- 132) What are the limitations of OFC?
- 133) What is LAN? What is the difference between internet & intranet, and
- 134) which can be categorized under LAN?
- 135) What do you mean of LAN, WAN, MAN & VLAN?
- 136) What is the function of Router?
- 137) How networking in our Railway has been done?
- 138) Discuss different network topologies? Give explanation diagram for each?
- 139) How to connect 10 nodes (PC) in network. Explain with diagrams, detailing equipments needed.
- 140) Explain the functions of switch? Also detail the advantages of switch over HUB?
- 141) What is VPN?
- 142) What is Layer 3 switch?
- 143) What is synchronous & asynchronous communication?
- 144) What do you mean by NMS?
- 145) What is the permissible length between switch to switch via CAT-5/6 cable?
- 146) Give details of AFRES, MMIS, and PRIME?
- 147) Give full form of SNMP
- 148) What is the meaning of MAC ? What is IP address?
- 149) How do we connect FOIS network between two stations. Explain with

block diagram.

150) Explain with block diagram the connectivity of FOIS between Divisions to Zonal HQ.

151) Draw a block diagram of UTS and PRS at a way side station?
Write the IP address of SER.

152) Write full forms of the following
ISDN, SMPS, MTBF, OTDR, SCADA, ACSR, OLTE, MODEM, NMS, UTS, PIJF, DTMF,
GSM, CRIS, FOIS, SPC, COIS, HDB-3, TDM, RMS, STM, LAN, WAN, PCM, CUG, PTCC,
COA, SFP, VSAT, IRCOT, PNR, POET, CSMA/CD, OSI, HTTP, FTP, ITU,

153) Write short notes on Hubs, repeaters, bridges, switches, Routers, Proxy Server, Terminal Server, Line Driver, Unification of UTS & PRS.

154) Discuss the merits & demerits of SDH?

155) Discuss the difference between PDH & SDH system? Also advantages of SDH over PDH system.

156) What are tests conducted in OFC?

