(iii) (102)

WEST CENTRAL RAILWAY
Signal & Telecommunication Department
Written Examination for selection to Group 'B" post of ADSTE
(LDCE-30% Quota)
Date – 19-Feb-2017
Paper II
(Professional Subject, Establishment & Financial Rules)

Time - 3 Hours **Max marks-150**

1. All questions in Part "I" are compulsory. Part "I" carries 50 Marks.
2. Part-II contains three parts i.e. Part-A, B & C. Part-II contains total 100 marks. Total 6 questions to be answered, minimum 1 from each Part A, B & C and maximum 3 from a part. **Please also see instructions given in each part.**
3. Answer should be in brief supported by diagrams wherever necessary.
4. Answers can be written in Hindi or English language.
5. In the objective type questions, cutting, over-writing, erasing, selecting two or more options in multiple choice questions and change of any answer(s), etc is not permitted. If it is done, the evaluation of the same shall not be done.
6. In case of any dispute related to interpretation of question, English version will hold good.

PART 'I'

Q.1 **Write short notes on any 4 of the following:-** **20 Marks**

(i) Extraordinary leave.
(ii) List of Minor penalties.
(iii) Daily Transactions Register.
(iv) Abstract estimate.
(v) Measurement book.

Q.2 **Answer any 2 of the following:-** **20 Marks**

(i) What are the classification of Railway servant under HOER? Explain details of any one classification?
(ii) What are the demand numbers and main heads under which Revenue expenditure of S&T department is classified?
(iii) What are the different methods of inviting tenders? Explain the details of any one method?

Q.3(a) **Write the full form of:-** **05Marks**
(a) JCM (b) PREM (c) SBF (d) M&P prog. (e) LAW book.

Q.3(b) What is stock verification? How, the same is undertaken? **05 Marks**

PART-II

Part-II: Total 6 questions to be answered from part-A, B & C. One question is compulsory in each part A, B & C. Maximum 3 questions can be answered from a part.

PART-A – Question no. 4 is compulsory

Q.4 Fill in the blanks from the given option :- **15 Marks**

(i) Minimum visibility distance for a Distant signal in MACLS territory is..... meters

(A)200	(B) 400	(C) 600	(D) 800

(ii) Calling on signal is not permitted below ....signal.

(A Home	(B) Starter	(C) Last stop	(D) Intermediate starter

(iii) Block overlap in MACLS territory is .....meters.

(A)120	(B) 180	(C) 200	(D) 400

(iv) Nominal AC immunity of the point motor is .....

(A) 110 VAC	(B) 60 VAC	(C) 160 VAC	(D) None.

(v) AFTC type track circuit are suitable for .....area.

(A) DC RE	(B) AC RE	(C) DC & AC RE	(D) None

(vi) Slip siding is provided in case of gradient steeper than .....falling away from the station.

(A) 1in 80	(B) 1 in 120	(C) 1 in 100	(D) 1 in 180

(vii) Presently maximum permitted gradient in station yard is .....

(A)1 in 800	(B)1 in 1000	(C) 1 in 400	(D) 1 in 260

(viii) Currency of CRS sanction is .....months.

(A) 6	(B) 12	(C) 18	(D) 3

(ix) Period of overhauling of SGE Block instrument is .... years.

(A) 6	(B) 10	(C) 3	(D) 7

(x) Nominal stroke of IRS point machine is ..... mm

(A) 143	(B)150	(C) 220	(D) 160

Q.5 Write short notes on any 4 of the following:- **20 Marks**

(i) LED signal.
(ii) Disconnection memo.
(iii) Testing of EI-FAT & SAT.
(iv) Data logger
(v) Maintenance free earthing arrangement

Q.6. Answer any 2 of the following:- **20 Marks**

(i) What is Intra-signal Cascading and how the same is achieved?

(ii) Why BPAC is provided? Please explain how BPAC is achieved on a double line section?

(101)

(iii) What is Red lamp protection and how the same is achieved?

Q.7. Answer any 2 of the following:- **20 Marks**

(i) Explain working of IPS provided at a wayside station with the help of block diagram

(ii) Define Approach locking and Back locking and how the same is achieved.

(iii) Explain the requirement of IBS provision?. How the same is achieved?

PART-B – Question no. 8 is Compulsory.

Q.8 Fill in the blanks from the given option :- **15 Marks**

(i) Insulation resistance for control office equipment shall be more than ..... Megaohm between conductor and earth.

(A) 05	(B) 10	(C) 15	(D) 20

(ii) 0.5 mm conductor dia PIJF telecom cable can be used for subscriber connection up to ..... kilometre.

(A) 02	(B) 02.5	(C) 04	(D) 05

(iii) Maximum permissible loop resistance of subscriber line for auto exchange working on 48 volt is ..... ohms.

(A)325	(B) 375	(C) 450	(D) 600

(iv) Input impedance of VF amplifier in amplifier equaliser system is .....ohms.

(A) 1120	(B) 600	(C) 470	(D) 200

(v) In calculation of OFC loss budget connector loss of .....db is considered.

(A) 0.2	(B) 0.03	(C) 0.1	(D) 02

(vi) While laying Optic Fibre Cable, at every joint loop of ..... meters is kept on either side.

(A) 02	(B) 05	(C) 10	(D) 20

(vii) For STM-1 bit rate is approximately ..... Megabits per second.

(A)100	(B)250	(C) 155	(D) 622

(viii) Most commonly used connector to link the Desktop computer to network is .....

(A) RJ-45	(B) BNC	(C) TNC	(D) NONE

(ix) Optic Fibre cable used on Railways shall support working of 1310 nms and .....nms window

(A) 1100	(B) 1550	(C) 1800	(D) NONE

(x) Surge Protection Devices are used for ..... protection.

(A) Over Voltage	(B) Under Voltage	(C) Over Current	(D) NONE

Q.9 Write short notes on any 4 of the followings:- **20 Marks**

(i) DTMF signalling.
(ii) Arrangements for Level crossing gate communication
(iii) Advantages of OFC communication.
(iv) Quad Cable jointing
(v) Role and Functioning of Emergency Socket

Q.10 Answer any 2 of the followings:- **20 Marks**

(i) Indicate details of construction of jelly filled six quad cable used on Indian railway.
(ii) Explain working of Integrated Passenger Information system with the help of block diagram.
(iii) Explain functioning of Mobile Communication system.

Q.11 Answer any 2 of the following:- **20 Marks**

(i) How various channels are derived from the OFC system at a way station? Please indicate details with the help of block diagram?
(ii) Explain with the help of block diagrams functioning of modern digital electronic exchange.
(iii) What are main components of video Conferencing system arrangement?

PART-C – Question no. 12 is compulsory

Q.12 Fill in the blanks from the given option :- **10 Marks**

(i) High contact resistance problem is observed in ..... type of relays.

(A) Metal to Metal	(B) Metal to Carbon	(C) Metal to Semiconductor	(D) None

(ii) Shelf type track relay are required to be overhauled at a periodicity of .....years.

(A) 03	(B) 05	(C) 07	(D) 10

(iii) Battery charger of 24volt can charge maximum ..... number of secondary cells.

(A) 12	(B) 14	(C) 16	(D) NONE

(iv) The normal working voltage of 1.4 volt DC pertains to ..... type of Relay

(A) QNN1	(B) QTA2	(C) QSPA1	(D) QBCA1

(v) The smallest value that can be measured by any measuring equipment is called its.....

(A) Range	(B) Linearity	(C) Variation	(D) Sensitivity

Q.13 What are the steps involved in overhauling of Single line token block instrument in Signal workshop. What are the must change items during such overhauling. **20 Marks**

Q.14 **Answer any 2 of the following:-** **20 Marks**

(i) What are the main S&T items manufactured in Railway signalling workshops?. How these items can be procured by division from these signalling workshops.

(ii) Explain various stages involved in railway signalling workshop starting from receipt of demand of a product by consignee till product is dispatched to the consignee in division.

(iii) What are various signalling item requires periodical overhauling in railway signalling workshop. Explain the procedure involved of getting the overhauling done.

Q.15 **Write short notes on any 4 of the following:-** **20 Marks**

(i) Float charging and Boost charging mode of charger

(ii) Ground connection of point machines

(iii) Boom assembly of a lifting barrier

(iv) Repair and testing of Relay groups in Railway signalling workshops

(v) Sliding boom arrangement.

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