

## **Question Bank for Group 'B' selection in S&T Dept.**

### **Signal**

1. What are the points to be considered while locating a new Colour Light Signal in electrified sections.
2. Describe the procedure to be followed while making cancellation of a route section by S&T staff?
3. An IBS work has been sanctioned in non-electrified 'B' route in one of the divisions. What are the factors to be considered before going ahead with the work?
4.
  - a) A 'D' class station in electrified double line section is to be converted into a 'B' class precedence station with Standard III interlocking, directional loops, one A&D siding and centralized operation of points and signals with PI. Draw a typical sketch of the lay-out?
  - b) Show and number the signalling gears?
  - c) Mark the route sections if the station is to be provided with panel interlocking based on metal to metal relays?
5. What are the essentials of interlocking?
6. Write any 5 items of repair/maintenance for which disconnection memo is not required?
7. What is a lamp proving relay? Explain the working of an AC lamp proving Relay using L type current transformer and the relay. What are the limitations of this arrangement?
8. What are the lamp proving arrangements for junction type direction route indicator? Explain its working.
9. What are the special features of Siemens ECR relays?
10. What are periodical tests to be done at a Panel Interlocked installation? Who is competent to conduct these tests and at what periodicity?
11. How is signal bulb protected from glowing due to induced voltage in RE area under fault condition.
12. What is Red Lamp protection? How does it improve safety?
13. What latest techniques are being adopted for lighting Colour Light Signals? Discuss merits of each technique.
14. What precautions must be taken while laying Signalling cable in RE area in vicinity of (i) OHE, (ii) Sub station, (iii) FP, SP, SSP?

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15. Write short notes: (a) Audio frequency Track circuits (b) Track locking (c) Approach locking (d) Networking of Data Loggers. E) cascading of signals
16. Draw the dog chart and explain procedure for testing the following: 8 locks (20, 21 W 12 R), 13 locks (20, 21 W 14 R)
17. What are the steps involved in overhauling a single line token block instrument? What tests are conducted on overhauled instruments?
18. What precautions are required for filling and upkeep of measurement book?
19. What is SL-35 and its advantage over SL-21 used for same purpose?
20. What are the various buttons provided on the Domino type operating panel? Describe their functions and identifications?
21. Prepare selection table for main line home signals, common loop home signal and starter signal in one direction at a typical 4 line station on double line section.
22. What are the advantages of automatic signalling over absolute block signalling? What is the procedure for passing automatic signal at ON condition?
23. Indicate block section in double line territory for class 'A' Class 'B' & Class 'C' stations with the help of simple sketches.
24. What is the procedure to pass the following signals by driver;  
(i) IBS at ON (ii) Gate signal at ON (iii) Advance starter at ON.
25. Indicate various modules of an Integrated power supply for a Central Panel station, explain working of various modules. Name the specification used for procurement of Integrated Power Supply by Indian Railways. Who are the vendors approved by RDSO.
26. Draw the signal Interlocking plan of a 4 line Class 'B' station with one hot axle siding and a common loop with Standard-III Interlocking in a double line section with distant signals. Draw the aspect control chart. Put numbering of points, signals etc.
27. Write short notes on the following:
  - i) Cascading of signals.
  - ii) Multi-section Digital Axle Counter and its RDSO approved suppliers.
  - iii) Catch and slip siding.

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- iv) Signal sighting Committee.
  - v) Spring setting device (SSD).
28. What are the latest instructions to be followed when an IRS point machine is to be used along with a Siemens or ABB type panel point groups. Give the answers with typical sketches.
29. Write short notes based on points on any five of the following.
- a) Single Tender
  - b) Material modification
  - c) Re-appropriation
  - d) Action plan for Signalling for 2005-06
  - e) Telecom action plan for 2005-06
  - f) Checking of a scale plan
30. What are the interchange point of South East Central Railway?
31. What tests will you conduct on a lock bar during inspection?
32. Why is positive boom locking necessary at interlocked level crossing gates?
33. Explain with sketches the lock & block working in double line SGE block.
34. What are the conditions for taking off the home signal?
35. Draw dog chart for the following locking
- (i) 2(R) by 3 or 4 or 5: 5 R by 9 when 8 R
  - (ii) 4 locks 5,6,7,8  
5 locks 4,6,7,8  
6 locks 4,5,7,8  
7 locks 4,5,6,8  
8 locks 4,5,6,7
36. Draw the typical Block Schematic of an IPS systems to feed a Central panel interlocking in RE area at a 'B' Class station on double line 'A' route, the loop lines of which are proposed to be provided with axle counter.
37. What are the advantages of IPS system over conventional power supply system?
38. What are the various problems experienced in the performance of a DC track circuit in electrified section? Indicate the corrective actions.
39. List the documents to be submitted to CRS for obtaining his sanction for opening the station.

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40. Draw a signalling layout for a 'B' Class station on double line with loop on either side including one common loop with std.III interlocking and MACLS and a L.C gate. Number the functions.
41. Why second distant signals are being provided on 'A' route? Give the aspect control chart for a typical second distant signal.
42. How the line capacity can be increased on a double line.
43. What are the essentials of automatic signalling?
44. Draw the dog chart in one channel, satisfying the following locking:-
  - a) 15 locks 17 both ways and 20 both ways.
  - b) 15 released by 19 with 17 normal.
  - c) 15 locks 23 both ways with 20 reverse.
45. Indicate briefly what is our action plan for signal reliability upgradation.
46. List precautions required to be taken in signalling installation for safety consideration in RE areas.
47. Explain the IBS working and how it differ from Class 'C' station?
48. What are the indications available on IB panel and explain each indication.
49. How many press buttons are provided on IB panel and explain their functions.
50. Briefly describe the functions of axle counter relays provided for IB signalling.
51. Briefly describe the Route, Sub Route and Route sections in RRI installation and what why it is done so in RRI?
52. What are the relay in Route Group for double Route section and explain briefly the functions of them?
53. Explain how the Sectional Route Release is achieved in case of Siemens RRI?
54. What are the relay nomenclature used in RRI?
55. Draw the IB signal control circuit and Explain.  
  
Why stick path is given for IB TPR in IB signal control circuit?

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56. What are the groups available in Siemens RRI system?
57. How many Relays can be housed in Major Group?
58. What is the function of Point Chain Group?
59. While designing Signal control circuit, what are the conditions to be proved?
60. Draw the circuit diagram for Home signal control circuit with route indicator for 3-road station of your own sketch PI station.
61. What are the locking that can be provided on point lever and explain with sketches.
62.
  - I. What is meant by cross protection?
  - II. Explain briefly controlling circuit for Signal, Point and Track equipment with cross protection arrangement?
63.
  - I. What is meant by double cutting in circuits?
  - II. What are the Relays Circuits to be provided with this feature?
64. What are the conditions for picking up of UCR circuits?  
For a given yard lay out draw circuit diagram for picking up UCR for Signal No. S1 for Road No. 1
65. What is the function of ASR? For given yard lay out draw a circuit diagram for picking up of ASR for signal No. S1.
66. Write three ways by which route can be released?  
Explain by circuit diagram Automatic route release by passing of train.
67. What are the differences between Relay interlocking of Route setting type and Non route setting type?
68. What are the tests conducted before commissioning of Relay interlocking stations?
69. Explain with neat Block diagram the steps involved in clearing of Signal-explaining the role of ASR, UCR, WLR, HR
70. Explain the various indications and operations facility provided on the panel in any relay interlocking station.
71. If after passing of train on proper Signal route is not released. Explain how will you trace the fault.
72. What are the conditions for lowering an automatic signal.

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73. What are the conditions for lighting A-marker?
74. What are the conditions for giving proceed (green) aspect of an automatic signals?
75. Draw a sketch showing a various positions of automatic signals, track circuits, Mark the minimum distances required.
76. Prepare an aspect control chart as per the movement of a train section by section in an automatic signalling territory.
77. What is the necessity of a 4-aspect automatic signalling.
78. Draw a circuit diagram for automatic signal lighting in 3-aspect territory.
79. Draw a circuit diagram for signal controlling relay circuits in a 4-aspect territory.
80. How do you take care of a blank signal in automatic signalling, draw a circuit diagram.
81. Can an axle counter be used in automatic signalling? What are its advantages & disadvantages.
82. Explain route holding with the help of a sketch.
83. What are locking relationships that can exist between a signal lever and other levers.?
84. Why advance starter should lock trailing points in rear both ways?
85. How successive lock bar locking ensures route holding?
86. What are precautions to be taken while preparing dog chart of a full locking tray?
87. Prepare dog chart of the following in one channel
  - a) 5X(25 W 9 N-12N)  
17x(29 W 9 N)
  - b) 7x(15 W 8 N)  
7X(19 W 8 R)  
7 x 8
88. Prepare dog chart of the following in one channel
  - a) 7x 8.9.15.22  
17 x 15

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- b) 16X(22 W 9 or 12 N)
89. Prepare a dog chart of the following in one channel
- a) 9 x (21 W 4 N 5 N 6 N)
  - 9 x (23 W 4 N 5 N)
  - 9 x (25 W 4 N)
  - b) 1 x 2.3.4.5.6.7
  - 2 x 1.3.4.5.6.7
  - 3 x 1.2.4.5.6.7
  - 4 x 1.2.3.5.6.7
  - 5x 1.2.3.4.6.7
  - 6x 1.2.3.4.5.7
  - 7 x 1.2.3.4.5.6
90. How conditional locking improves yard flexibility? Explain with reference to a small layout.
91. What is redundant locking? Why is it to be avoided in Mechanical locking?
92. What is the minimum length (number of Rails) of any d.c. Track circuit?
93. What works are required to be carried out by ESM on a point machine during his maintenance Visit? Mention 3 activities for which Disconnection Memo is issued?
94. Draw the power supply arrangement for axle counter provided for loop line? Explain the necessity of trolley protection in an axle counter installation?
95. What are the essentials of lock and block working? How is polarized relay in SGE block instrument protected in RE area?
96. Draw the typical circuit diagram of a thermal time delay circuit for overlap cancellation.
97. What are the essential features of Tokenless Block working in Single line section?
98. How do you differentiate subsidiary signals from running signals?
99. Explain the distinction between SMPS and conventional chargers. What is the current limiting feature in charger?
100. Explain the distinction between thermal type time element relay and a latched relay with simple circuits and sketches. What are the applications of each type?

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101. Why are axle counters used in Railway signaling? What are the typical applications of axle counters?
102. What are the signaling works, you feel, for which CRS sanction is not required?
103. A signal situated on LHS is to be shifted to RHS. Who is competent authority to give sanction? Indicate the documents to be submitted for this.
104. Draw the Cable Core Plan for one side of the station.
105. What are the recent instructions in taking line clear in the event of block instrument failure?
106. Based upon your experience list five major causes of signal failures and their corrective action.
107. What are the various phases of track circuiting required to be provided at a 'B' class station on 'A' route.
108. How can we increase line capacity in an electrified double line section by signaling means?
109. What is creep? How is it formed and what are its effects on signaling?
110. What is meant by simultaneous reception facility? What are the various means for providing such facility?

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### **Telecom**

1. What are the advantages of a digital MW system over OFC communication? Why are OFC systems still more popular?
2. Why quad is cable used in conjunction with OFC in Railway's communication networks?
3. What are the tests to be conducted on an OFC system before it is commissioned?
4. Write the steps involved in trouble shooting of UTS equipments?
5. What are the problems, observed by you, associated with the working of the Railnet? What are the suggestions for improving its performance?
6. What is MPLS? To which of the applications of railway communication needs, this is most suited?
7. Write short notes: (a) Parabolic antenna (b) walkie-talkie set (c) Fresnel zone radius calculation (d) LAN/WAN. e) Fade Margin f) Fire wall g) Coach guidance train indication board
8. Draw neat sketch of 6 pin socket wiring for Emergency Control in RE area. Show Trans and receive paths on circuit of PCP Set.
9. What is the close numbering scheme? What are its advantage? Describe its implementation on SEC railway.
10. Indicate the typical earthing arrangement of a railway Microwave repeater station?
11. Why and to whom PTCC clearance is given by the Railways? Describe items to be checked before clearance.
12. Why is loading necessary in underground RE Cable? How is loading carried out?
13. Write various test conducted and measurements recorded before commissioning of STM-1.
14. What are the items taken up by S&T department under "Touch & Feel" on SEC Railway?
15. What is call center in reference to Railways? What facilities are offered through call center explain?

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16. What is meant by Blocking and Non-blocking Exchange?
17. Explain Cable laying practice for OFC and 6 Quad cable. Explain the measurement taken at various states of Cable laying.
18. What are the factors, which determine the maximum length of a section control circuit? How is the spacing of R.E.Cable repeaters decided?
19. Write short notes on the following:  
i) MPLS      ii) Routers      iii) GSM-R      iv) OTDR      v) Modem.
20. What telecommunication facilities are provided in accident relief train-explain.
21. What are the advantages of SDH system over PDH system.
22. Draw the block diagram of a Digital Electronic exchange and explain the principle of working.
23. With help of neat sketch, explain LAN connectivity over SEC Railway. Explain various components of LAN and its functionality. What is the utility of NMS?
24. Indicate the various circuits that will be in quad cable and OFC short haul both. Draw the typical arrangements at a way side, a major station, indicating the delivery of streams for various functions.
25. What are the normal installation and maintenance problems encountered in the OFC system? Suggest the preventive action.
26. What is fading? How is it caused? What are the remedial actions?
27. How will we achieve directivity in radio propagations? Explain with respect to UHF and microwave transmissions.
28. Calculate power budget for a section of 80 Km to be provided with Optical fibre communication system. The parameters are as under:
  1. Fibre Attenuation : 0.25 db/Km
  2. Splice loss : 0.1 db
  3. Drum length : 3 Km
  4. Connector loss : 0.5 db
  5. TX power : -2 dBm
  6. RX sensitivity : -36 dBm
29. Explain with neat sketches the functioning of optical fibre system

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- used for control working.
30. What are the advantages of OFC over other media of communication.
  31. Draw a neat block diagram of MW trans-receiver indicating therein the various frequencies and power levels.
  32. What are the advantages of digital technology vis-a-vis analogue?
  33. What are the different diversity systems used to overcome failures? Briefly explain.
  34. Explain with the help of diagram the principle of patching control circuits. How does patching improve the efficiency of control circuits?
  35. Explain the phenomenon of fading in MW transmission. What are the means to counter the effects of fading?
  36. What are the communication arrangements required at the site of a major accident?
  37. What is the role of the Disaster Management Control Centre at Zonal Hqrs? What are the facilities available.
  38. Write short notes on the role of the following:  
i) PTCC      ii) WPC      iii) SACFA      iv) ITU-T (CCITT)
  39. Explain the features of an ISDN Electronic exchange with brief description of the features.
  40. Write short notes on the following:  
i) IVRS      ii) NTES      iii) Passenger Announcement system  
iv) DTMF signalling      v) OTDR.
  41. Write short notes on:  
i) Antenna gain      ii) Splice loss      iii) Impedance matching  
iv) charge-discharge system      v) Satellite phone      vi) wave guide.
  42. What are the different types of lines faults occur in the O/H lines.
  43. Explain what are the different types of RE under ground cables joints.
  44. What are the advantages of DTMF system.
  45. Explain with neat diagram and the working system of DTMF Head Quarters equipment.
  46. Write short notes on three  
a) Loading coil joint

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- b) Intermediate repeater
  - c) Balancing
  - d) Way station Equipment in RE area.
47. Advantages of Electronic Exchanges over Electromechanical Exchanges.
  48. What are measuring instruments required for installation and commissioning of OFC link?
  49. What are the specific advantages of OFC communication over other communication systems?
  50. What are the factors contributing for losses in optical fiber communication?
  51. What is a trans mux?
  52. What is the difference between Terminal Mux, Drop/Insert Mux Skip mux?
  53. What is the latest specification 6 quad cable? Indicate the quad allocation? Colour code adopted for quads.
  54. What do you understand by equalizer amplifier and leak amplifier? Describe them briefly?
  55. What is the maintenance schedule of a quad cable? Explain the test you perform with simple diagrams?
  56. List the main S&T equipments provided in 'A' class ART. What communication arrangements required to be provided at accident site of a passenger train?
  57. Name five steps involved in the annual line up of a microwave radio link. List the typical equipments used.
  58. What are the communication arrangements to be provided at an accident site involving passenger carrying trains?
  59. How is fade margin of a microwave hop calculated?
  60. What are the various types of cables being used on Indian Railways for Telecom Circuits
  61. How will we achieve directivity in radio propagations? Explain with respect to UHF and microwave transmissions.

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62. Exchanges at 2 divisional headquarters have been connected at E1 level on OFC system. Direct dialing has now failed. Indicate how will you go about the fault diagnosis and rectification.
63. Based upon your experience list five major causes of failures of electronic exchange and their corrective action.
64. Draw the schematic diagram showing the dropping/feeding arrangements at the station and working arrangements of the emergency circuit.
65. A new PRS centre is to be opened in one of the divisions of SECR. Draw the schematic diagram of the link from the host computer right upto the terminal indicating derivation of the circuit and the various equipments needed. Also indicate the scheme for IVRS of PNR enquiry.
66. What is VPN? What is the system used for provision of the same?
67. What is regeneration in Digital Transmission? What are the principles involved in the same?
68. Write short notes on:-
  - i) Coach Guidance System
  - ii) Train Indication Board
  - iii) Master-slave Digital clock.
69. What precautions are taken for jointing Optic Fiber Cable?
70. What do you understand by unification of PRS and UTS and how it is achieved?

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**STORES/ESTT./ACCOUNTS/OFFICIAL LANGUAGE/G.K.**

1.	What are the various types of tendering system in vogue in S&T department? Indicate the circumstances under which each of this can be resorted?
2.	What are the points to be kept in mind while filling up the measurement book by the supervisor in-charge for a contract work?
3.	What are the various benefits available to a Railway employee on retirement?
4.	Explain, what do you understand by material modification in an estimate?
5.	Describe provisions in Section 3(3) of Official Language Act 1963 (amended in (1967)). What documents are covered by this Section?
6.	Explain the role of CHECK POINT in implementing the Official language policy.
7.	List out minor and major penalties under DAR. Describe the procedure for initiating, finalizing and imposing major penalty?
8.	Explain briefly: (i) Commuted Leave ii) Study Leave iii) DCRG. (iv) Family Pension (v) Paternity leave vi) Ex-India leave.
9.	Write short notes on i) Stock verification ii) Safety Surcharge iii) PREM (iv) Classifications under HOER.
10.	What do you understand by appropriation Accounts? (
11.	What is Benchmarking? How is right sizing of human resources achieved by- a) Bench Marking b) Multi skilling
12.	How cordial industrial relations are maintained on the Railways? Elaborate on the institutional machinery available for sorting out the disputes on staff matters at various levels.
13.	What are various measures by which direct recruitment is made to the Non-Gazetted cadre?
14.	What is AAC? How it is fixed and what is the advantage of the same?
15.	Why are selections based on LDCE & GDCE permitted by Railway Board? Differentiate between the two?
16.	What are selection and non selection posts? Describe the procedure to be followed if promotions are to be made in each of them indicating the various factors to be considered?
17.	What do you understand by term "Commutation of Pension"?
18.	What is the percentage of posts in various grades in ESM/TCM category?
19.	Name five welfare schemes undertaken by the Railway for the staff?
20.	What is appropriation accounts?
21.	What is the procedure for inviting single tender?
22.	What is rate contract? What are its advantages?
23.	What is stock sheet and departmental stock verification?

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24.	What are the different types of leaves, an employee is eligible for?
25.	How are the staffs classified according to HOER?
26.	A wire of 10-Ohm resistance is folded from center and its ends are joined together, what is resistance of the folded wire.
27.	What do the following abbreviations stand for- MPLS, TRAI, GSM-R, CDMA, NTES & CCRS.
28.	What is DTH, Sensex, Disinvestment?
29.	Name the Hon'ble President of India, Prime Minister of India, General Manager of SECR, Chairman of Railway Board, Chief Justice of Chhattisgarh, Member Electrical of Railway Board?
30.	What is GDP. What GDP growth is projected for India for the year 2007-08. What are the main factors affecting the inflation in our country?
31.	What are the ABC reasons for the purpose of implementation of the official language?
32.	What are incentives for Railway employee for getting proficiency in Hindi?
33.	Explain turn around story of Indian Railways.
34.	What is dedicated freight corridor project of Indian Railways?
35.	Which is highest earning Zonal Railway in India? What are its main source of revenue?
36.	What is tenure of Rajya Sabha Member?
37.	What are the states served by South East Central Railway?
38.	Which of the following technology is used for Internet access from Cellular telephones working on GSM. DTMF, GPRS, DECT, CDMA,
39.	Transformer works based on the principle of- Mutual Induction, Self Induction, Eddy current, Mutual capacitance.
40.	The Steam Locomotive was Invented by- James Wat, George Stephenson, Alfred Wright, Thomas Edison.
41.	On single line section provided with Standard-III LQ signalling, the block over lap is- 400 mtrs, 300 mtrs, 180 mtrs, 120 mtrs.
42.	Write the aspect in a 4 aspect signal unit from bottom to top? (
43.	An IRS point machine is driven by- A DC series Motor, A DC shunt motor, a Synchronous motor.
44.	Brass is an alloy of – Copper & Zink, Copper & Tin, Copper, Tin & Zink, None of above.
45.	List any five benefits available to a Railway Employee on retirement. Explain briefly each?
46.	List out five steps taken by Railways for the Welfare of the Staff.
47.	Explain with the help of Block Diagram, the system configuration of the Railnet backbone system for data communication on SECR? What are the problems associated with the functioning of the Railnet on SECR? Suggest remedial actions.
48.	What are selection and non-selection posts. Describe the procedures to

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	be followed if promotions are to be made in each of them indicating specifically the various factors to be considered?
49.	What are various measures by which direct recruitment is made to the Non-Gazetted cadre?
50.	What are the extant instructions in vogue for filling up the posts in ESM/TCM grade III/'C' category?
51.	What are the various services (in gazetted and non gazetted category) into which the Rly. Employees are grouped. How are personnel selected into each of these groups in S&T department.
52.	What are the various plan heads under which works are approved by the competent authority? List five plan head with at least one typical example of work for each.
53.	What is the value of equivalent resistance if 30 Ohm and 20 Ohm resistances are connected in parallel and this combination is connected in series with 8 Ohm resistance?
54.	Calculate resonance frequency of a series combination of 0.2 micro-farad capacitance and 5 milli-Henry inductance cascading resonant circuit.
55.	What is total wattage of combination, if two 100-watt bulbs are connected in series?
56.	What arrangements are made to make the relay show to release?
57.	Name the Public Sector Undertakings under Ministry of Railways?
58.	What is IGNOU and where is it Located?
59.	Indicate in which region Chattisgarh State lies as per official language.
60.	What are the A, B & C regions for the purpose of implementation of the official language.
61.	Write short notes on- a) Internet, b) Global Positioning System, c) IVRS, d) TPWS, e) EBD.
62.	Explain the difference between Abstract Estimate and Detailed Estimate. What do you understand by Material Modification?
63.	Name at least three allocations under which S&T works can be proposed for sanction through WP. Name one type of work for each.
64.	What are the points to be kept in mind while filling up the measurement book by the supervisor in-charge for a contract work.
65.	What is the need for an official language in India?
66.	What are the stipulations regarding the following? a) Minimum distance between centre line of a track to centre line of adjacent track in new works. b) Gradient permitted in station yard without CRS's approval. c) Minimum length of overshoot line. d) Clearance of a point from L.C gate. e) Minimum, CSR required in double engine section.
67.	What are the kinds of Estimates?
68.	What is meant by August Review?
69.	What is meant by "Final Modification"?
70.	What is "Urgency Certificate"?

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71.	Differentiate Administrative approval and Technical sanction of the works.
72.	Write about M & P programme.
73.	Prepare estimate for "Provision of Axle Counter" on one loop line.
74.	Name five registers required to be maintained in the depot of SSE [signal]/SSE[tele] and the periodicity of their checking by the SSE.
75.	What are the occasions for which temporary and final withdrawal can be made from the provident fund.
76.	Which are the regions into which India is divided according to the official languages act. Give names of one state for each region.
77.	How do you think Hindi as an Official language will promote national integration?
78.	Write short notes on (a) Proprietary certificate, (b) Imprest Stores, (c) Works covered by Green Book and Pink Book, (d) 3 tier check, (e) Schedule of Dimensions, (f) Annual Maintenance Contract.
79.	Name any five former "Minister for Railways" or Minister of State" with independent charge of India and the states from where they were elected to the parliament.
80.	Name any five Public Sector Undertakings under the Ministry of Railways. Indicate at least one purpose for which each of these PSUs have been set up.
81.	Name any five Private Companies offering Cellular telephone services in India. What are the general conditions under which they are allowed to operate?
82.	Give names of (a) Chairman of Railway Board, (b) PM of Nepal, (c) Chief Minister of Rajsthan, (d) President of Bangladesh, (e) Dy. Chairman of Planning Commission, (f) Finance Minister.
83.	Where are following located (a) IGNOU, (b) United Nations, (c) Zonal Office of W.C Railway, (d) Capital of Bangladesh, (e) Board of Cricket Control of India HQ, (f) Security Press of India
84.	Write truth table of AND, OR, EX-OR, NAND Gate, showing standard symbols to represent them in circuits. Assume 2 inputs.
85.	Write five items required to be included in the monthly PCDO to Sr. DSTE from SSE [Sig]/SSE[Tele].
86.	What are yours suggestions to popularize Hindi as a National language?
87.	Name any five Women Prime Ministers, various nations in the world have/had along with the country they rule/ruled.
88.	List out minor and major penalties under DAR. Describe the procedure for initiating, finalizing and imposing major penalty?
89.	Explain briefly the following: i) Commuted Leave ii) Study Leave iii) DCRG iv) Family Pension v) Paternity Leave.
90.	What are the stipulations for calling "single tender" and "limited tender"? What do you understand by e-tendering and e-learning?
91.	What is the procedure for procurement of 'stocked' and 'non stocked' items? What checks to be made while preparing a requisition for stores?
92.	What precautions are required for filling and upkeep of measurement

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	book?
93.	Explain various benefits that an employee gets on retirement and what are the entitlements of family when an employee dies in service?
94.	What is PNM? How does it help in maintaining Industrial harmony? Explain distinction between PNM and PREM?
95.	What are liquidated damages?
96.	Explain the distinguishing features of Pink Book and Green Book?
97.	What are various allocations applicable to S&T works? What is SRSF?
98.	What do you understand by appropriation Accounts?
99.	Write short notes on a) Stock verification b) Completion estimate c) Finance concurrence d) Safety Surcharge e) Urgency Certificate.
100.	Describe the processes involved in invitation and finalization of tenders.
101.	What is Earnest money & Security Deposit. Give typical values for a tender costing Rs. 7 Cr.
102.	What are the implications if a tenderer withdraws his offer before and after the acceptance.
103.	What are the instructions regarding retention of railway quarter (i) On permanent transfer to another place requiring shift of residence (Other than new zones) (ii) On retirement.
104.	What is the process involved in making an item a stock item? What is the unique identity of a stock item?
105.	What is the importance of Rajbhasha in Railway working. What are the steps taken by the Railways to popularize the use of Rajbhasha. Into which region of the distribution based on Rajbhasha, your division lies?

## Question Bank for Group 'B' selection in S&T Dept.

### Objective type questions (All subjects)

1. Jelly filling of 6 Quad cables is resorted to-
  - a) Prevent propagation of moisture & water seepage.
  - b) Increase the insulation resistance.
  - c) Improve the attenuation characteristics.
2. The walkie-talkie sets used for the Driver-Guard communication have rated power output of-
  - a) 2W (b) 5W (c) 10W (d) 25W
3. Reflectors are used in Yagi antenna to-  
Reduce the effect of back lobes.
  1. To cater for signal strengths in the near vicinity.
  2. To counter balance the Wt of directors.
  3. To give it look a uniformity and enable proper mounting.
4. An E1 stream has bandwidth of-
  - (a) 2 Mbps (b) 4 Mbps (c) 6 Mbps (d) 100 Mbps.
5. An STM-1 link can give a bandwidth of-
  - (a) 21 E1s (b) 63 E1s (c) 1E1 (d) 144 Mbps.
6. The no. of spare conductors prescribed in each main cable up to the farthest points is-
  - (a) 10% (b) 20% (c) 30% (d) 2 Nos.
7. The terminals and connectors of secondary cells are coated with petroleum jelly or Vaseline-
  - (a) To prevent corrosion
  - (b) To prevent leakage of electrolyte
  - (c) To prevent leakage of current
  - (d) To prevent accidental
8. The frequency band allotted to Railway for UHF communication is in the range of-
  - (a) 450 MHz (b) 300 MHz (c) 800 MHz (d) 2 GHz
9. The insulation resistance of 6 Quad cables is to be meggered with a megger rated-
  - (a) 100 V (b) 500 V (c) 2300 V (d) 1000 V
10. The technology used for communication between two computers in the same or adjoining rooms is-
  - (a) Blue tooth (b) GPS (c) GPRS (d) DTMF
11. Parabolic reflectors are used in Microwave communication for-
  - (a) getting the required polarity
  - (b) for the line of sight communication.
  - (c) Increasing the signal strength by amplification.
  - (d) getting directional propagation.
12. The 'Broad band' service provided commercially by the service provider has a data transfer rate of
  - (a) 64 Kbps (b) 2 Mbps (c) 128 Kbps (d) 256 Kbps
13. Type of OFC cable used in Indian Railways.
  - a) Single mode loose tube b) Single mode hard core c) Multimode loose tube d) Multimode hard core.

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14. K factor of the earth under normal atmosphere conditions  
a) 2    b) 1.0    c)  $\frac{1}{2}$     d) 1.33
15. DTMF uses frequency combinations of  
a) 2    b) 3    c) 5    d) Nil
16. In Railways, charge-discharge system is mostly used in  
a) MW installations    b) OFC installations    c) Telephone exchange    d) Test Room
17. The height of the tallest towers used in MW systems on Indian railways  
a) 100 M    b) 120 M    c) 150 M    d) 90 M
18. Warning light on MW towers are used to  
i) Warn aircraft at night    ii) Warn aircraft during day    iii) To mark the tower height    iv) (i) & (iii) above.
19. Idle current of 4 W way station selector for DTMF signalling is of the order of  
i) 15 ma    ii) 50 ma    iii) 100 ma    iv) 1 ma
20. Beam reflectors are used in:  
i) MW system    ii) OFC system    iii) Quad cable communication    iv) Telephone exchanges
21. In RE cables of configuration 1+m+n, n represents  
i) No. of PET quads    ii) No. of paper quads    iii) No. of carrier quads    iv) No. of data quads.
22. Balancing in RE cable is carried out at:  
i) Condenser joint    ii) Normal joint    iii) Derivation Joint    iv) Loading coil joint.
23. The contact resistance in ohms of a metal relay is  
(a) 0.5    (b) 0.03    (c) 2.25    (d) 0.18
24. The block overlap in meters in a C class station on MACLS territory is  
(a) 180    (b) 120    (c) 400    (d) 300
25. The transmitter used in OFC system is  
(a) Laser diode    (b) LED    (c) Power transistor    (d) SCR.
26. Overhauling periodicity of a shelf type line relay in years is  
(a) 15    (b) 10    (c) 12    (d) not necessary
27. The maximum length of tail cable in meters of a DC track circuit is limited to  
(a) 200    (b) 90    (c) 20    (d) 250
28. The power output in watts in VHF sets used for driver to guard communication is  
(a) 2    (b) 5    (c) 2    (d) 1
29. The opening at the toe of the switch in millimeters in the case of an open switch in broad gauge is  
(a) 260    (b) 115    (c) 160    (d) 220
30. The maximum length of a track circuit in meters in QBAT track relay with choke at both ends is  
(a) 750    (b) 450    (c) 350    (d) 600
31. The meggar used to measure the insulation resistance of paper quads in RE cables is rated typically for  
(a) 500V    (b) 100V    (c) 350V    (d) 1000V

**Question Bank for Group 'B' selection in S&T Dept.**

32. The distance between the last stop signal and the first stop signal in the opposite direction at a 'B' class station interlocked to Std.III on single line equipped with MACLS is  
(a) 180m (b) 120m (c) 300m (d) 400m
33. As per revised classification of gates issued by Rly. Board. 'A' class gate is where the TVU are  
(a) More than 50000, (b) Between 30000 and 50000  
(c) Between 25000 and 30000 (d) More than 20000
34. The range of single ended rod operated point is  
(a) 275m (b) 450m (c) 380m (d) 700m
35. The competent authority to upgrade a firm from Part-II list of approved sources of electrical signalling equipments to Part-I list is  
(a) RDSO (b) Rly. Bd. (c) CORE (d) Zonal Rly.
37. The display of aspects in a four aspect signal from top to bottom is  
(a) Red, Green, Yellow, Yellow (b) Green, Red, Yellow, Yellow  
(c) Yellow, Green, Yellow, Red (d) Green, Yellow, Yellow, Red
38. The details of inward and outward movement of materials in a depot attached to SSE(Tele) are entered in  
(a) Ledger (b) DTR (c) Stock verification register (d) Both Ledger and DTR.
39. The workload of a division for S&T branch is expressed in terms of  
(a) DESUs (b) DETUs (c) DISTUs (d) ZISTUs
40. The equivalent no. of Voice Channels in one E1 stream is  
(a) 8 (b) 16 (c) 24 (d) 30
41. Cellular telephones use the technology of  
(a) GSM (b) Tetra (c) Microwave (d) UHF
42. Isolation of run through lines is essential at a station if the speed is  
(a) More than 15 Kmph (b) More than 30 Kmph (c) More than 50 Kmph (d) More than 100 Kmph.
43. The number of casual leaves permitted to the office staff in DRM's Office in one year is  
(a) 12 days (b) 8 days (c) 10 days (d) 16 days
44. The standard compliment of signals at an interlocked level crossing gate in two aspect lower quadrant territory is  
(a) Outer, warner, gate stop signal (b) Gate stop signal  
(c) Outer, gate stop signal (d) Distant, gate stop signal
45. In automatic signalling territory, the following class of gates need to be interlocked  
(a) Special class (b) B class (c) All Classes (d) A Class & Spl Class
46. The following circuit is used to cut off the receiver output in a radio relay equipment when no signal is coming through the carrier  
(a) Demodulator (b) Squelch (c) SSB (d) AGC
47. The Optical Fibre (OFC) media transmits energy in the form of  
(a) Light (b) Electricity (c) Electromagnetic waves (d) UHF waves
48. Brass is an alloy of  
(a) Copper and Zinc (b) Copper and Tin (c) Copper, Tin &

**Question Bank for Group 'B' selection in S&T Dept.**

- Zink  
(d) None of the above.
49. Transformer cores are laminated in order to  
(a) Simplify its construction (b) Minimise eddy current  
(c) Reduce cost (d) Reduce Hysteresis loss
50. The Basic function of a rectifier is to  
(a) Change the level of a D.C Voltage  
(b) Convert D.C. into A.C.  
(c) Change frequency of A.C voltage  
(d) Convert A.C. into D.C.
51. Transformers are rated in KVA instead of KW because  
(a) Load power factor is often not known  
(b) KVA is fixed KW depends on load p.f.  
(c) Total transformer loss depends on volt ampere  
It has become customary.
52. The contact rating in amps of a metal to carbon relay contact is  
(a) 3 (b) 5 (c) 0.5 (d) 1
53. The minimum prescribed visibility in meters of a MACLS distant signal is  
(a) 400 (b) 200 (c) 1000 (d) 800
54. The speed of data transfer in digital transmission is expressed as  
(a) BER (b) Kilobits per sec (c) Kilobytes per sec (d) Words per sec.
55. The adequate distance in meters at an IBS signal in MACLS territory is  
(a) 180 (b) 400 (c) 120 (d) 300
56. The diameter of the conductor in mm in 0+17+3 quad cable is  
(a) 0.5 (b) 0.6 (c) 0.9 (d) 1.5
57. Overhauling periodicity of a Q type track relay in years is  
(a) 15 (b) 7 (c) 12 (d) not necessary
58. The transmitter and receiver power levels in OFC system is normally expressed as  
(a) Watts (b) Milliwatts (c) dbm (d) db
59. Coil resistance of a QN1 relay in ohms is  
(a) 9 (b) 1000 (c) 400 (d) 4.5
60. Pre-stressing of SL-35 signal lamps is prescribed for  
(a) 8 hrs (b) 6 hrs (c) 3 hrs (d) 24 hrs
61. The number of voice channels in a 2 megabit stream is  
(a) 12 (b) 30 (c) E1 (d) 24
62. "Swaraj is my birthright and I shall have it"  
a) Mahatma Gandhi (b) Mohammad Ali Jinna (c) Sardar Patel  
d) Bal Gangadhar Tilak
63. "Workers of the World Unite- You have nothing to loose but something to gain:  
a) Karl Mark (b) Mao Tse Thung (c) Jyoti Basu (d) Jospheh Stalin
64. The people of America were addressed by the words "My dear Brothers & Sisters of America"- These dectrifying words were spoken

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- by;  
a) Pandit Nehru    b) George Washington    c) Swami Vivekanand  
d) Abraham Lincoln
65. "I have nothing new to teach the world. Truth and non-violence are as old as the hills"  
a) Mahatma Gandhi    b) Nelson Mandela    c) Martin Luther King  
d) Jesus Christ.
66. "Monalisa" one of the greatest painting was a great work done by  
a) Pablo Picasso    b) Michael Angelo    c) Leonardo Da Vinci  
d) M.F.Hussain
67. 10 Downing Street is the Official Residence of:  
a) The American President    b) The British Prime Minister    c) The Indian Prime Minister  
d) The Queen of England
68. The Presiding Officer of the Rajya Sabha is;  
a) The Speaker    b) The Dy. Speaker    c) The Vice President  
d) The Parliamentary Affairs Minister
69. The controversial book "Satanic Versus" is written by  
a) V.S.Naipaul    b) Salman Rushdie    c) Vikram Seth  
d) Shobha De
70. The city selected to host the next Olympic Games in 2008 is  
a) Beijing    b) London    c) Seol    d) Paris
71. The person who captained Independent India's first cricket team  
a) Lala Amarnath    b) Polly Umrigar    c) Prof. Deodhar    d) Duleep
72. Indira Gandhi Gold cup tournament" is associated with a)  
International Women's Hockey    b) International Women's Cricket  
c) National Wholly Ball for Women    d) National Basketball for Women
73. The person holding the record for the highest score in a innings in Test Cricket is a) Sunil Gavaskar    b) Donald Bradman    c) Brian Lara  
d) Allan Border
74. The first city to have underground Metro Railway in the world is  
a) Paris    b) London    c) Kolkata    d) Tokyo
75. Article 356 of the Constitution deals with  
a) Imposition of Presidents Rule in a State  
b) Granting of special status to Jammu & Kashmir  
c) Summary dismissal of a Government Servant for a heinous crime  
d) Granting of equality to all religious.
76. The film "Pathar Panchali" was directed by  
a) Mrinal Sen    b) Satyajee Ray    c) Rishikesh Mukherjee  
d) Raj Kapoor
77. The hurricane that caused large scale devastation in USA in the recent past is  
a) Tsunami    b) Katrina    c) Rita    d) Wilma
78. The father of Space Research Programme in India

## Question Bank for Group 'B' selection in S&T Dept.

- a) Dr. Vikram Sarabhai    b) Prof. Satish Dhawan    c) Prof. U.R.Rao  
d) Dr. A.P.J. Abdul Kalam
79. The pioneer of Nuclear Science Research programme in India  
a) Dr. H.N.Sethna    b) Dr. Homi Bhabha    c) Prof. M.G.K. Menon  
d) Dr. A.P.J. Abdul Kalam
80. The person who came to be known as the "Golden Girl of India" for the outstanding achievements in Sports  
a) P.T.Usha    b) Karnam Malleshwari    c) Sania Mirza    d) Anju Baby George.
81. Aligarh Muslim University was founded by:  
a) Sir Syed Ahmed Khan    b) Moulana Abdul Kalam Azad  
c) Mohammad Ali Jinna    d) Khan Abdul Gaffar Khan.

### 82. Fill in the blanks

1. The rating of the signal transformer for DG aspect is \_\_\_\_\_
2. The stroke applied at the end of a lever in catch-handle type lever frame for point operation is \_\_\_\_\_
3. In RE cable, the derivation transformers for emergency sockets are protected by \_\_\_\_\_ joints.
4. The principle of \_\_\_\_\_ is used in OFC for the propagation of signals.
5. \_\_\_\_\_ circuit separates the incoming and outgoing speech in telephone receivers.
6. Isolation is not a must in \_\_\_\_\_ interlocking.
7. The lowest signal in a starter having Calling-on and shunt signals is the \_\_\_\_\_ signal.
8. \_\_\_\_\_ separates the incoming and outgoing signals in a microwave trans receiver.
9. A work costing Rs. 1 crore approved in the works program will appear in \_\_\_\_\_ book.
10. Back contact proving is not restored in circuits using \_\_\_\_\_ relays.
11. The final output relay of an Audio Frequency Track Circuit is a \_\_\_\_\_
12. On SEC Railway the mechanically operated lifting barriers at a non-interlocked level crossing gate is maintained by \_\_\_\_\_
13. The equipment used to locate a fault in optical fiber cable is \_\_\_\_\_
14. In microwave communication, the energy radiated from a parabolic antenna is in the form of \_\_\_\_\_
15. Dehydrator is used in conjunction with wave guides to \_\_\_\_\_
16. Polycarbonate lenses are used in CLS for \_\_\_\_\_
17. 2<sup>nd</sup> distant signals are located at a distance of \_\_\_\_\_ mts from the first stop signal.
18. The goods sighting board is located at a distance of \_\_\_\_\_ mts. from the outer signal.

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19. The power ratings of the two filaments in an SL-35 lamp are \_\_\_\_\_
20. "Killing" is adopted in overhead line installation to \_\_\_\_\_
21. \_\_\_\_\_ are used in Axle Counter installation to protect the rail inductor.
22. Intermediate Block Signalling (IBS) is provided to \_\_\_\_\_
23. 'C' class stations are opened to \_\_\_\_\_
24. In metal to metal relay based systems, back contact proving is adopted to prevent the effect of \_\_\_\_\_
25. In microwave system \_\_\_\_\_ is reduced by adopting different polarization in adjacent Hops.
26. \_\_\_\_\_ circuit is used to cut off receiver of a diode relay equipment when no signal is coming through.
27. Charge-Discharge system is used in power supply system for \_\_\_\_\_
28. (i) The rating of a signal transformer provided in the signal unit is \_\_\_\_\_
29. "Armouring" is provided in cables for \_\_\_\_\_
30. "Jelly filling" is used in Telecom cables to prevent \_\_\_\_\_
31. MTTR stands for \_\_\_\_\_.
32. World Cup Football, 1998 was held at \_\_\_\_\_ and \_\_\_\_\_ were champion.
33. \_\_\_\_\_ is the capital of South Africa.
34. \_\_\_\_\_ is the secretary General of United Nations.
35. Indian Union has \_\_\_\_\_ States.
36. IRS Point Machines are manufactured by Railways at \_\_\_\_\_
37. \_\_\_\_\_ is the agency for issuing IRS Specifications.
38. Push Button Tokenless Blocks are manufactured in India by \_\_\_\_\_
39. a) R.C.F stands for \_\_\_\_\_
40. \_\_\_\_\_ gives sanction for commissioning of new works.
41. One route groups can handle \_\_\_\_\_ route sections.
42. In Siemens installations the relays used are operated at \_\_\_\_\_ voltage.
43. Point Group in Siemens RRI is a \_\_\_\_\_ Group and contains \_\_\_\_\_ relays.
44. Double route Group in Siemens RRI is \_\_\_\_\_ group and it has \_\_\_\_\_
45. In latched relays feed to normal coil is given through \_\_\_\_\_ contact of Reverse relay coil.
46. Sub route is said to be locked when \_\_\_\_\_ relay is latched.
47. In Q series relays contacts are made from \_\_\_\_\_ and \_\_\_\_\_

## Question Bank for Group 'B' selection in S&T Dept.

48. In latched relays normally \_\_\_\_\_ coil gets feed and latches.
49. In IB signal control circuit ASR1 & ASR2 will pick up at \_\_\_\_\_ station, when \_\_\_\_\_ station turn the block handle turn to TOL position.
50. BR relay attracts to line clear contact when block handle turn to Line clear position at \_\_\_\_\_ station.
51. Door lock arrangement will effective when block handle is turned to TOL position from \_\_\_\_\_
52. Track locking is provided on lock lever at \_\_\_\_\_ positions.
53. Indication locking is provided on \_\_\_\_\_ lever at \_\_\_\_\_ positions.
54. The adequate distance or overlap in automatic signaling is \_\_\_\_\_
55. A semi automatic signal may have \_\_\_\_\_ And \_\_\_\_\_ Ahead.
56. 4-aspect automatic signalling enhances the \_\_\_\_\_
57. Blank lamp protection is achieved by proving \_\_\_\_\_ in \_\_\_\_\_ circuit.
58. Distance between signal to lock bar and lock bar to lock bar of same direction should not be more than \_\_\_\_\_ m
59. In D.W operated points layouts, route holding is achieved by \_\_\_\_\_ method.
60. Purpose of lock bar is to achieve \_\_\_\_\_ locking.
61. In electro-mechanical layouts, lock bars are replaced by \_\_\_\_\_
62. Signal is released by \_\_\_\_\_ Lock bar.
63. Signal \_\_\_\_\_ dependent signal.
64. Lock bar \_\_\_\_\_ lock bar ahead.
65. Successive lock bar locking is to \_\_\_\_\_
66. Opposite lock bar locking is to \_\_\_\_\_
67. Signal in advance \_\_\_\_\_ trailing points in rear.
68. Stroke of tappet of a rack and pinion lever is \_\_\_\_\_
69. Pitch of channels in catch handle type lever frame is \_\_\_\_\_
70. Tripping stroke on clutch lever is \_\_\_\_\_ mm
71. Availability of a wrong notch against a lock during or after the tappet movement is called \_\_\_\_\_
72. 16 R. By (19 W 12 N)- Swinger on 19 should be \_\_\_\_\_ swinger.
73. 6 x (15 W 8 N) -- Minimum No. of swingers required are  
6 x (25.26 W 8 N 17 R) -- \_\_\_\_\_
74. 7 x (19 W 9 R 17 N) -- Swingers must be provided on  
7 x (25 W 9 R) -- \_\_\_\_\_
75. Reverse swingers should not be provided in \_\_\_\_\_ channel.
76. In D.W locking tray, numbering of tappets is to be done from \_\_\_\_\_ hand side to \_\_\_\_\_ hand side.
77. Overhauling of lever frame is required once on

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- \_\_\_\_\_years.
78. Authorised Officer on South East Central Railway for issuing special instructions is \_\_\_\_\_
79. Location of signal on right hand side requires \_\_\_\_\_months.
80. CRS's sanction is valid for a period of \_\_\_\_\_months.
81. Application for CRS's sanction is to be signed by \_\_\_\_\_officer.
82. Reduction in overlap requires \_\_\_\_\_sanction.
83. Relocation of a signal on L.H side without change in minimum required distance needs \_\_\_\_\_sanction.
84. Removal of a track circuit requires \_\_\_\_\_sanction.
85. When CRS does not want to inspect the work prior to its opening, \_\_\_\_\_is to be issued.
86. Safety Certificate is to be countersigned by \_\_\_\_\_
87. Application for CRS's sanction shall be made at least \_\_\_\_\_Days before the probable commencement of work.
88. SWRs shall be read in conjunction with \_\_\_\_\_
89. SWR should be reviewed every \_\_\_\_\_years.
90. \_\_\_\_\_to be obtained from operating staff that they have fully understood SWRs.
91. Working Rules for LC gates are to be prepared in \_\_\_\_\_language and pasted in gate lodge.
92. SWR to be issued after every \_\_\_\_\_amendment slips.
93. Station yard extends to a distance of \_\_\_\_\_mtrs beyond top points.
94. Starter is located at \_\_\_\_\_mtrs from SRJ of loop line.
95. Details of gradients, bridges, L.C gates, etc are to be given for a distance of \_\_\_\_\_from top points towards block section.
96. \_\_\_\_\_cross over is not permitted for passenger lines.
97. Clear distance of \_\_\_\_\_mtrs is to be maintained between SRJs of adjacent point.
98. Minimum distance between centre line to centre line of adjacent track is \_\_\_\_\_
99. Isolation between Goods line to Goods line is compulsory (True/False)
100. In Single line Yards, CSR is measured between \_\_\_\_\_and \_\_\_\_\_
101. \_\_\_\_\_condonation is to be obtained for gradients steeper than 1 in 260 in station yards.
102. \_\_\_\_\_is provided to facilitate simultaneous reception facility.
103. Schedule of dimensions is last revised in the year \_\_\_\_\_
104. Minimum horizontal distance of a signal post from centre line of adjacent track(s) at a height of 3 mtre is \_\_\_\_\_
105. For new works, the gradient permitted in Station Yard without any condonation is \_\_\_\_\_
106. Additional clearance in curves is to cater for \_\_\_\_\_motion of the running train.

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107. The velocity of sound in air is \_\_\_\_\_m/sec
108. Sound wave travel in vacuum (Yes/No) \_\_\_\_\_
109. Audible range of speech \_\_\_\_\_to \_\_\_\_\_
110. Wind shield used in Microphone to Eliminate \_\_\_\_\_Sound
111. High impedance microphones crystal/carbon \_\_\_\_\_
112. Low impedance microphone Dynamic/Condenser \_\_\_\_\_
113. Horn type loud speaker have \_\_\_\_\_low frequency response.
114. Cross type loud speaker have \_\_\_\_\_high frequency response.
115. Echo is sound reflection reach the human ear of listener \_\_\_\_\_Sec after the original sound.
116. In stereophonic reproduction minimum channel used \_\_\_\_\_
117. Loss in unloaded U/G RE cable is \_\_\_\_\_
118. Lead Sheath cables are used for U/G RE area is \_\_\_\_\_
119. Loading coil joint is done for \_\_\_\_\_Quads only.
120. Insertion loss of isolation transform is \_\_\_\_\_
121. Each repeater will boost maximum gain is \_\_\_\_\_
122. Maximum number of tapping transformers used in the entire section are \_\_\_\_\_
123. The depth of quad cable when laid along with OFC cable is \_\_\_\_\_and laid without OFC \_\_\_\_\_
124. The loading coil value used in 6 quad cable joint is \_\_\_\_\_
125. Balancing is done to reduce \_\_\_\_\_
126. The dia. Of conductor in the 6 quad cable is \_\_\_\_\_
127. Transmission loss of light through optical fiber cable is \_\_\_\_\_dB/Km at 1550 nm.
128. The principle of operation of optical fiber cable is \_\_\_\_\_
129. \_\_\_\_\_Meter is used for locating break fault in OF cable.
130. \_\_\_\_\_
131. Name any two types of optic fiber 1 \_\_\_\_\_2 \_\_\_\_\_
132. The refractive index of \_\_\_\_\_is uniform through out its core diameter.
133. For long haul communication the most suitable fiber is \_\_\_\_\_
134. Blank Signal protection is achieved by means of \_\_\_\_\_
135. Frequency Diversity is used to reduce the effect of \_\_\_\_\_
136. Parabolic Reflectors are used in microwave communication to give \_\_\_\_\_
137. Charge Discharge system of use of battery installation is adopted to \_\_\_\_\_
138. \_\_\_\_\_time delay is provided in release of the overlap in relay interlocking systems.
139. Function of the DUCR relay is \_\_\_\_\_
140. Sequential route release is achieved by the use of \_\_\_\_\_circuits.

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141. The frequency band allotted to railways in microwave radio relay system is \_\_\_\_\_
142. The competent authority to give sanction under "approved special instructions" is \_\_\_\_\_
143. Jesus Christ was born in the holy place of \_\_\_\_\_
144. The birth place of Gautam Buddha is \_\_\_\_\_
145. The British Prime Minister at the time of India obtaining independence was \_\_\_\_\_
146. The earlier name of Zimbabwe \_\_\_\_\_
147. The highest civilian award granted in India is \_\_\_\_\_
148. \_\_\_\_\_ is the author of Vande Matheram.
149. The present pope, the highest spiritual leader of the Christian community is \_\_\_\_\_
150. The present Secretary General of the United Nations is \_\_\_\_\_
151. The magnitude of Earthquake is measured in \_\_\_\_\_
152. The first Indian Astronaut to go to space is \_\_\_\_\_
153. The Chairman of Microsoft Corporation \_\_\_\_\_
154. The Chief Mentor of infosys is \_\_\_\_\_
155. The Present Chief Justice of the Supreme Court of India is. \_\_\_\_\_
156. The capital of Jharkhand is \_\_\_\_\_
157. The persons who climbed Mount Everest for the first time are \_\_\_\_\_
158. Television set was invented by \_\_\_\_\_
159. The grade of a SAG officer in S&T department is the \_\_\_\_\_
160. The highest award for Literary work in India is the \_\_\_\_\_
161. The highest sports award given to the Coach of an outstanding sports person is the \_\_\_\_\_
162. The first Indian General to be decorated with the title of "Field Marshal" is \_\_\_\_\_
165. In D.W operated points layouts, route
166. In RE cable, the derivation transformers for emergency sockets are protected by \_\_\_\_\_ joints.
170. The lowest signal in a starter having Calling-on and shunt signals is the \_\_\_\_\_ signal.
171. \_\_\_\_\_ separates the incoming and outgoing signals in a microwave trans receiver.  
In electro-mechanical layouts, lock bars are replaced by \_\_\_\_\_

### 83. True or False

1. ABCE lock is provided on signal lever. T/F
2. Theatre/Multi lamp route indicator is provided on Home signal for train speeds in excess of 15 Kmph T/F

### Question Bank for Group 'B' selection in S&T Dept.

3. Track circuit is provided in place of Lock Bar. T/F
4. The no. of bulbs in multi lamp route indicator is 60  
T/F
5. JSLR Relay picks up in Home signal route release circuit for train movement. T/F
6. QJ1 Relay is provided with thermal element. T/F
7. Normal aspect of Second distant signal is Yellow. T/F
8. Calling on Signal can be cleared with a time delay of 60 seconds on SEC Railway.  
T/F
9. Home signal route can be released by application of cancellation in case of back lock track circuits failure.  
T/F
10. Dead approach locking is provided on Home Signal.  
T/F
11. Approach locking is provided on signal lever at E position.  
T/F
12. Approach track is not occupied, starter which was cleared cannot be released without time delay. T/F
13. The loop resistance of 6 quad cable, 0.9 mm dia. Is greater than the loop resistance of 0.9 mm dia 0+17+2 RE cable. (True/False)
14. A quad contains 2 pairs. (True/False)
15. The loading coil used in RE quad cable is 118 mh. (True/False)
16. The specification of 6 quad jelly filled U/G cable used in RE area is RC: 30/96. (True/False)
17. 2T transformer used for EC in quad cable laid along with OFC cable is having impedance ratio 470:1120 ohms. (True/False)
18. The frequency of light wave carrying information is in the region of 10 – 14 Hz. (True/False)
19. The refractive index of core is higher than that of cladding. (True/False)
20. The transmission loss of optical energy at 1310 nm is higher than at 1550 nm. (True/False)
21. In OF cables splice loss shall not exceed 0.2 db under any circumstances. (True/False)
22. SDH frame is 500 microseconds and contains 2430 bytes (True/False)
31. One train one signal feature is achieved by TSR Relay in relay interlocking. (True/False)
32. Route Holding is achieved by ASR in relay interlocking. (True/False)
33. Interlocking is achieved in relay interlocking by proving VCR & ASR. (True/False)
34. When WNR picks up point is operated to normal and WRR picks up point is operated reverse.
35. Not permitting point to operate under track failure condition is called Track Locking. (True/False)
36. When approved electronic time element relays are used these shall be 2 in numbers and their contacts shall be in series in the concerned time Release circuits. (True/False)

**Question Bank for Group 'B' selection in S&T Dept.**

37. Entrance-Exit principle is used in Route setting type of relay interlocking. (True/False)
38. Indicate where are the following relays used
- a) CHLR-Crank handle interlocking circuits.
  - b) LXPR-Level crossing proving relay.
  - c) KLCR-siding point control.
  - d) SMR-Locking of panel.
39. UYRs are made:-
- a) Slow to pick up
  - b) Slow to release
  - c) Stick to release
  - d) None of the above.
40. Write the full form of:-
- |           |          |           |           |           |
|-----------|----------|-----------|-----------|-----------|
| (a) RELHS | (b) PTCC | (c) WIMAX | (d) ZISTU | (e) IRSTE |
| (f) PNM   | (g) LMLA | (h) SOD   | (i) SMPS  | (j) IRCTC |
41. Write the full form of:-
- |         |           |          |           |          |
|---------|-----------|----------|-----------|----------|
| (a) SDH | (b) HKT   | (c) PAC  | (d) VRLA  | (e) SMPS |
| (f) DRF | (g) SSDAC | (h) PREM | (j) DISTU |          |
42. Expand the following:
- |         |           |         |          |         |
|---------|-----------|---------|----------|---------|
| (a) IDF | (b) C-DoT | (c) PCM | (d) ISDN | (e) TIC |
| (f) RCP | (g) RCP   | (h) BRI | (i) CCS  | (j) SPC |