

SOUTHERN RAILWAY

Written examination for the post of Instructor/Gr. II/signal/ (Ex-cadre)

DATE OF EXAMINATION: 10.01.2012

Time: 10:00 Hrs

Total marks: 100

Time duration: 3 HRS

I-State true or false

(10 x 1 = 10 marks)

1. Block overlap in L.Q. signalling and class 'C' station with multi aspect colour light signalling is not same.
2. If there is a gate in automatic section then the signal will have "A" and "G" marker.
3. In class B station with multi aspect signalling, Passenger warning board is provided at distance of one Km in rear of home signal.
4. BSLB is provided at class B station with lower quadrant signal, where first point is trailing point OR there is no point.
5. Point indicator shall be fixed on Non-interlocked point.
6. 'Calling ON' signal can be provided below any stop signal other than first stop signal.
7. The maximum range of winch operation of lifting barrier L.C. Gate from the point of operation is 150 meters.
8. Foot plate inspection must be done by JE/SE (Open line) once in 90 days.
9. Reception signals should not be taken OFF for motor trolley.
10. Warner is released by Outer & Main Line Home.

II-Fill in the blanks:

(10 x 1 = 10 marks)

1. In IB signalling, to despatch a train from station in rear, the section shall be clear not only up to IB signal but also up to _____ metres beyond the IBS.
2. For all Gauges, the maximum recommended gradient permitted in station yard is _____.
3. The speed restriction of a train working under double line section in the event of Total Interruption of Communications during the night times is _____ KMPH.
4. The initial charging of lead acid secondary cells is to be done at _____, rate for _____ Hours.
5. _____ crank is used to have 90 degree diversion in rod run.
6. The initial charging of lead acid secondary cells is to be done at _____ rate for _____ Hours.
7. The ballast resistance should not be less than _____ ohms in Station section.
8. For fail-safe adjustment TI-21, the receiver gain in AFTC is adjusted to drop shunt value of _____ ohms (other than 'tuned zone').
9. The ripple content in output of an axle counter suitable charger shall not exceed -----mV PP
10. In BJT's, the emitter - base junction is _____ biased and collector - base junction is _____ biased always.

III- Match the following:

(10 x 1 = 10 marks)

- | | |
|----------------------|---------------------------------------|
| 1. Data logger | -ve, +ve, -ve |
| 2. Reverse swinger | 750 m Track circuit |
| 3. BPAC | Voltage regulator |
| 4. QBAT relay | -ve, -ve, +ve |
| 5. Current regulator | 450 m Track circuit |
| 6. TGT code | Normal notch |
| 7. TCF code | LED signal |
| 8. Normal swinger | DSU & ASU |
| 9. QTA2 relay | To ensure complete arrival of trains. |
| 10. Zener diode | Reverse notch |

IV-Choose the best answer:

(10 x 1 = 10 marks)

- The movement of the locking tappet is ___ mm if clutch lever trips.
a) 22mm b) 12mm c) 32mm d) 42 mm
- 'Slip siding' protects the _____.
a) Station section b) Block section c) Home signal d) Block Instrument
- Minimum persons to be taken on motor trolley are _____.
a) 6 b) 8 c) 10 d) 4
- Maximum stroke of IRS point machine is _____.
a) 115 mm b) 117 mm c) 143 mm d) 100 mm
- Generally a _____ is provided for making a relay to act as a biased relay.
a) Permanent magnet b) Electro magnet c) Shunt d) None
- Normal aspect of distant signal in double distant territory is _____.
a) Caution b) Clear c) Attention d) Single yellow
- The currency of CRS sanction and CSTE sanction is _____ and _____.
a) 6 months & 1 year b) 1 year & 6 months c) 1 year & 1 year d) No time limit
- Total circular movement of the drive disc in friction clutch assembly is _____.
a) 180° b) 270° c) 360° d) 90°
- In LED signals, blanking option must be chosen for _____.
a) OFF aspect b) ON aspect c) Caution aspect d) None
- In EFFTRONICS Data loggers, all the Analogue inputs are scanned at the rate of _____.
a) 60 milli Second b) 1 Second c) 30 milli Second d) 30 Seconds

V-Answer the following:

(2 x 5 = 10 marks)

1. Translate the following words into Hindi:
 - a) Approval
 - b) General Manager
 - c) Division
 - d) Sanctioned
 - e) Signed
2. State the essentials of interlocking.

VI-Answer any five of the following: (All questions carrying equal marks)(5 x 10 = 50 marks)

1. a) Draw locking diagram for 11 R by 17, and Lock normal 6.
b) What are the checks to be made on points & crossing before taking over from Engineering Department for interlocking?
2. Draw yard diagram for a 4 road, class 'B' station on double line section with road 1 as common loop, provided with MACLS and demark locations of all the signals and sign boards.
3. a) Write the advanced features of 'Integrated Power Supplies' over conventional power supply.
b) Write different parts of LED signals and advantages over CLS signals.
4. What are the "fail safe adjustments" of a DC track circuit? How do you adjust the D.C track circuit as a fail safe?
5. Write features of Double line SGE Block Instrument & draw the Auto TOL circuit.
6. What are precautions to be followed while fixing a signal in 25 KV RE area? List out the different traction bonds to be provided in RE area.
7. Write the sequence of relays operated for a point operation in a RRI (System I) and Draw the circuits.