

SOUTHERN RAILWAY

**Examination for the post of Junior Engineer-II in Electrical (General Service) Department
Madurai Division. Promotional Quota. PB Rs.9300-34,800. GP Rs.4200.**

Date : 02.03.2013

Duration : 3 Hours

Time:10.00 Hrs

Max. Marks :100

Instructions to candidates

- ☞ Candidates should write their Name, Designation, Office, Roll Number/Staff Number, etc., in the space provided in the Fly leaf and not in any of the page in the Answer Books or Additional Sheets.
- ☞ Any Names/Roll Number if found in the Answer Books or Additional Sheets, such papers will be disqualified.
- ☞ In the Answer to the Objective Type Questions, no correction of any type is permitted. In case any correction is made, that answer shall not be evaluated at all.
For example, corrections made in the objective type questions like:-
(a) Cutting (b) Overwriting (c) Modifying the answer in any way
will not be evaluated at all.
- ☞ Answers should be written in the Answer Books giving question number.

PART- I

(Max. Marks: 50)

A. Choose the correct answer.

(Marks: 20x1 =20)

1. As per Hours Of Employment Regulations supervisors are classified as
 - a. Excluded
 - b. Continuous
 - c. Essentially Intermittent
 - d. Intensive
2. In a Building wiring the Green wire indicates the
 - a. Phase
 - b. Neutral
 - c. Earth
 - d. Aerial
3. The maximum variation allowed in frequency of AC supply is
 - a. $\pm 2\%$
 - b. $\pm 3\%$
 - c. $\pm 4\%$
 - d. $\pm 5\%$
4. Type of Fire Extinguisher recommended for electrical fires
 - a. Dry Powder
 - b. Carbon dioxide
 - c. a and b
 - d. Foam
5. Which of the following is to be necessarily kept in an electric substation?
 - a. First aid box
 - b. Stretcher
 - c. Earthing rod
 - d. All of the above

6. Maximum permissible Earth Resistance for buildings is
- 8 Ohm
 - 0.5 Ohm
 - 1.0 Ohm
 - 2.0 Ohm
7. The normal Specific Gravity of electrolyte of Lead Acid Battery should be
- 1200
 - 1180
 - 1100
 - 1210
8. The minimum depth of underground cable laid below track should be
- 1.5 m
 - 1.0 m
 - 2 m
 - 2.5 m
9. The Train Lighting wiring is a
- Two wire unearthed system
 - Four wire earthed system
 - Three wire unearthed system
 - Two-wire earthed system
10. Minimum Insulation Resistance of coach wiring will be
- 5 Meg ohm.
 - 10 Meg ohm
 - 2 Meg ohm
 - 20 ohm
11. A KiloWatt-Hour is a unit of
- Energy
 - Voltage
 - Current
 - Resistance
12. Capacity of Alternator for second class sleeper coach is
- 5KW
 - 2 KW
 - 4.5KW
 - 10 KW
13. Minimum clearance between coach body and live part is
- 15 mm
 - 10mm
 - 20 mm
 - 25mm
14. Duty Card Pass is normally issued for a period of
- One week
 - One year
 - One month
 - Two month

15. The Power Factor of the AC supply can be improved by using
 - a. Transformer
 - b. Motor
 - c. Generator
 - d. Capacitor
16. A distribution line of 440 V is classified as
 - a. LV
 - b. MV
 - c. HV
 - d. EHV
17. In wiring circuit the fuse will be placed on
 - a. Phase
 - b. Neutral
 - c. Earth
 - d. None of the above
18. A generator converts
 - a. Mechanical Energy into Light
 - b. Electrical Energy into Mechanical Energy
 - c. Mechanical Energy into Electrical Energy
 - d. None of the above
19. The capacity of storage battery is expressed as
 - a. KWH
 - b. KVAH
 - c. AH
 - d. WH
20. Purpose of transformer oil in a transformer is
 - a. Cooling
 - b. Insulating
 - c. Cooling and Insulating
 - d. None of the above

B. Fill in the blanks.

(Marks 10x1 =10)

1. Standard Form used for Imposing Minor Penalty -----
2. Pre cooling is to be done for -----Coaches.
3. Electrical light fittings in luggage compartment of SLR coach shall be-----type.
4. One HP is equal to ----- Watts.
5. Standard Voltage of Lead Acid battery is ----- V.
6. AC 2 Tier Coach ----- no. of 18 KW Alternators is used.
7. The rating of main Negative Fuse in BG TL coach is ---- A
8. Railway Servants are eligible for -----days of LAP every year.
9. Insulation Resistance of coach should be measured with ----- V Megger
10. Capacity of Lead Acid battery for AC coaches is -----AH

C. Expand the following.

(Marks: 5x2 =10)

1. HRC
2. SWG
3. RRU
4. CFL
5. LED

D. Write True or False.

(Marks 5x1 =5)

1. Excessive current in the cables is the reason of electrical fires on coaches.
2. Suspension is not a penalty.
3. AC is converted into DC by Transformer.
4. Casual Leave cannot be combined with holidays and rest days.
5. Censure is a minor penalty.

E. Match the Following

(Marks 5x1 =5)

- | | |
|---------------------|------------------------------------|
| 1. Megger | a. Voltage, Current and Resistance |
| 2. Current | b. Lux meter |
| 3. Specific Gravity | c. Ammeter |
| 4. Light | d. Insulation Resistance |
| 5. Multimeter | e. Hydrometer |

PART- II

(Max. Marks: 50)

Answer any five questions.

(Marks 5x10 =50)

1. Explain the Safety Rules and Procedures used for working in H.T and L.T equipments?
2. Describe the Energy Conservation measures adopted in Railways?
3. What are the various defects in a Lead Acid cell?
4. Explain maintenance schedule for transformer in a sub –station?
5. Draw a sketch and explain the procedure of testing an earth resistance with earth megger?
6. Write down various anti theft measures adopted in Train Lighting and AC coaches?
7. What are the Fire Prevention steps adopted in Train Lighting coaches?
8. Write down the FNE maintenance, Secondary Maintenance of coaches in open line?
9. As per Discipline & Appeal Rules, what are the different type penalties which can be imposed to Railway Servant?
10. (a) What is the 'Official Language' of the Indian Union?
(b) How many regions as per Official Language Rule?
(c) When is 'Hindi Day' celebrated?
(d) Where Hindi alone be used?
(e) In what region Tamil Nadu is situated?
