

22328

11819

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.

Marks

- 1. Attempt any FIVE of the following :** **10**
 - (a) State different types of holders used in wiring installation.
 - (b) State the types of protections provided by MCB.
 - (c) State the material used for making (1) Magnetic Core (2) Fuse element
 - (d) State gaseous and liquid insulating material. (one each)
 - (e) State the type of insulating materials under Class Y and Class B. (any two each).
 - (f) Draw circuit diagram for one lamp controlled with one switch.
 - (g) Define earthing. State its types.

- 2. Attempt any THREE of the following :** **12**
 - (a) State any four IE Rules regarding electric safety.
 - (b) Explain the suitability of aluminium as an electrical conductor with respect to its mechanical and electrical properties.

- (c) Select insulating materials for following parts :
- (i) Insulation between heating element and base plate of electric iron.
 - (ii) Insulation used over copper or aluminium conductor used for making coils.
 - (iii) Transformer bushings.
 - (iv) Insulation between transmission line and pole.
- (d) Compare casing capping wiring with concealed wiring. (any four points)

3. Attempt any THREE of the following :

12

- (a) Draw and explain the use of :
- (i) Combination plier
 - (ii) Tester
 - (iii) Wire Stripper
 - (iv) Hammer
- (b) Explain MCB and ELCB with connection diagram supplying single phase load.
- (c) State two applications of :
- (i) PVC paper
 - (ii) Porcelain with type of class based on withstand temperature is insulating material.
- (d) Draw wiring diagram for connection of one lamp controlled from two places. State the application of this connection.

4. Attempt any THREE of the following :**12**

- (a) State any two advantages of MCB over Fuse. State the standard specifications of MCB available in the market.
- (b) Explain HRGO and CRGO. State benefits of CRGO for manufacturing of core.
- (c) State the insulating materials used in motor. Write temperature class and withstand temperature ranges for them.
- (d) State the procedure for laying / installation of underground cable.
- (e) State the procedure for testing of earth pit resistance with necessary diagrams.

5. Attempt any TWO of the following :**12**

- (a) State Magnetostriction. Draw Hysteresis loop for :
 - (i) High silicon steel
 - (ii) Copper
 - (iii) Soft iron
 - (iv) Wood
- (b) State failure phenomena observed in insulating material. State four reasons for failure of gaseous and solid dielectric materials.
- (c) State significance of earthing. Draw and explain pipe earthing. State the values of earth resistances for :
 - (i) Substation
 - (ii) Residential wiring
 - (iii) H.T. Line
 - (iv) L.T. Line

P.T.O.

6. Attempt any TWO of the following :**12**

- (a) Compare the electrical, mechanical and thermal properties of :
- (i) asbestos
 - (ii) mica
 - (iii) porcelain as an insulating material
- (b) Classify wiring. State the type of wiring installation used for following applications with justification :
- (i) Hospital
 - (ii) Spinning mill
 - (iii) Milk Dairy
 - (iv) Hotel
- (c) Give the justification with diagram – “Earthing saves human life during Electrical faults”. State adverse effect of improper earthing system.
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