

# 314325

**12526**

**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.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following :** **10**
- a) State any two features of the National Electrical Code (NEC 2023).
- b) Draw the symbols of –
- i) Fan
- ii) Switch.
- c) Compare between non-industrial and industrial installations (Any two points).
- d) Define:
- i) Lumen
- ii) Luminaire.
- e) List any four materials used in LT distribution lines.

P.T.O.

- f) Define:
- i) Rough estimate
  - ii) Detailed estimate.
- g) Differentiate between overhead and underground distribution lines (Any two points).
- 2. Attempt any THREE of the following : 12**
- a) Differentiate between tender and quotation.
  - b) Explain the steps for preparing estimate of a domestic installation.
  - c) Classify industrial installations based on fire safety.
  - d) Explain the qualities of good contractor.
  - e) List the factors affecting the selection of LT/HT power cables.
- 3. Attempt any FOUR of the following : 16**
- a) Explain Percentage rate contract and labour contract.
  - b) Explain the steps for preparing estimate of a commercial installation.
  - c) Draw and label single line, wiring diagram of three phase induction motor connected to supply with Star-Delta starter.
  - d) State the factors to be considered for selection of cable for streetlight.
  - e) Explain various arrangements of street lights as per road layout.
  - f) Draw the detail construction of cable.
- 4. Attempt any TWO of the following : 16**
- a) A newly constructed residential unit is having following load.
    - i) 8 Lamps of 30W
    - ii) 6 ceiling fan of 65W
    - iii) 4 Sockets of 6 Amp having 50 watt
    - iv) 2 Sockets of 16 Amp having 2 KW
- Calculate:

- i) Total lighting load
  - ii) Total power load
  - iii) Size of distribution board
  - iv) Number of sub-circuit
  - v) Prepare the schedule of material required for providing a batten wiring system.
- b) Prepare an estimate for street light installation of 10 poles, 30 m spacing, with 250 W lamps.
  - c) A hall whose dimensions are 20 m × 15 m is to be fitted with an electrical installation of following load – Fluorescent lamps 16 Nos. Ceiling fan 10 Nos. Plug points 06 Nos.
    - i) Draw a layout and show the position of lamps, fans etc., Calculate the rating of equipments.
    - ii) Prepare a schedule of material.
    - iii) Find out cost of work.

5. Attempt any TWO of the following :

16

- a) State the sequence to be followed to prepare estimate of factory unit.
- b) Estimate the main material required for a 2 km overhead line to extend from existing line. Assume a span of 50 m.
- c) In a workshop, one 15 HP, 3-phase, 440 V, 50 Hz motor is to be installed. Prepare the estimate required for PVC surface conduit wiring. The plan of the workshop is shown in Figure No. 1.

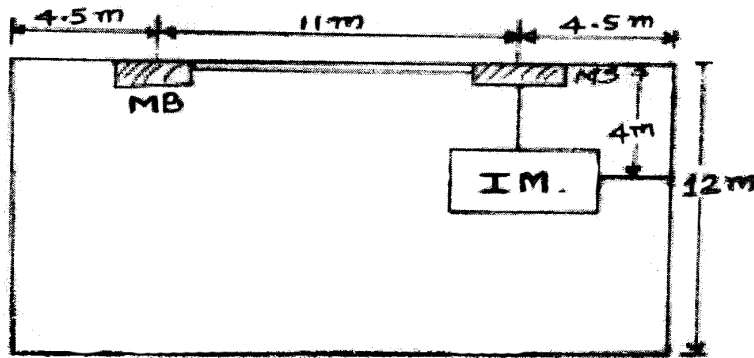


Fig. No. 1