

17416

15162

3 Hours / 100 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 TEN of the following:** **20**
- a) Give classification of Electrical Installation with suitable examples of each.
 - b) Draw symbols for lamp, exhaust fan, light socket and bell.
 - c) Draw wiring diagram for 1 lamp and 1 fan.
 - d) Define service connection with neat diagram.
 - e) State general IE rule for deciding no. of subcircuit for light and power circuit.
 - f) List out various wiring accessories for conduit wiring.
 - g) State the use of busbar, MCB, ELCB and DB.
 - h) Differentiate between wire and cable.
 - i) Draw a neat diagram for busbar chamber.
 - j) Draw a single line diagram for motor wiring circuit.

P.T.O.

- k) State the material and size of earth wire used for industrial installation.
- l) List out various types of tenders.

2. Attempt any FOUR of the following: 16

- a) List out general rules and guidelines for installation of residential Electrification. (any eight)
- b) Define contract. State requirements of valid contract.
- c) A room is to be fitted with 1 fan, 1 tube and one light socket. Draw single line dia., schematic dia. and wiring diagram.
- d) Draw a neat labelled diagram for underground service connection.
- e) Compare underground and overhead service connection on the basis of safety, labour cost, location and installation time.
- f) Prepare schedule of material for overhead service connection.

3. Attempt any FOUR of the following: 16

- a) Draw symbols for
 - (i) ICTP
 - (ii) Ceiling fan
 - (iii) Twin tubes
 - (iv) Push button
- b) A room consist of following load
 - Tube points 4 nos. - 40 W each
 - Fan points 3 nos. - 100 W each
 - Lamp points 2 nos. - 60 W each
 - 5A socket outlet 4 nos. - 100 W each
 - 15A socket outlet 2 nos. - 1000 W eachFind
 - (i) Total light load and power load.
 - (ii) No. of subcircuits required.
 - (iii) Rating of main switch.
 - (iv) Rating of DB required.
- c) Differentiate between MCB and ELCB.

- d) Compare residential installation and commercial installation on the basis of type of supply, purpose of installation, load capacity, general requirements.
- e) State the design consideration for commercial installation.
- f) A motor is to be operated with star delta starter. Draw wiring diagram showing connection for motor, starter and motor switch.

4. Attempt any FOUR of the following: 16

- a) State the need of earthing. Draw neat diagram for plate earthing.
- b) A room $4\text{m} \times 5\text{m}$ is to be fitted with one tube, one fan and one 5A socket. Draw installation plan and wiring diagram. Calculate length of conduit and wire required.
- c) Describe how rating of main switch, motor switch DB and cable is decided in Industrial Installation.
- d) State any six requirements of valid contract.
- e) Give complete procedure for submission and opening of tender.
- f) Define security deposit and earnest money deposit.

5. Attempt any TWO of the following: 16

- a) A three storeyed building has 10 shops on each floor. Each shop has 2 fan, 3 tubes, one power socket. Draw complete wiring diagram for above load.
- b) A hall of $10\text{m} \times 6\text{m}$ is to be fitted with 8 fan and 15 tubes. Prepare schedule of material for complete installation.
- c) Prepare schedule of material for Industrial load as shown in Figure No. 1.

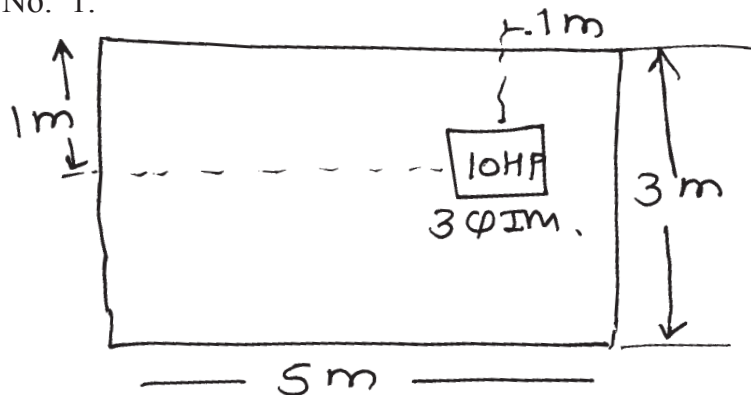


Fig. No. 1

6. Attempt the following:

4

a) Decide rating of main switch, DB, motor switch and starter for following load.

(i) 1HP, 3 ϕ sq. cage IM, IFL = 5A

(ii) 3HP 3 ϕ slipring IM, IFL = 8A

b) Attempt any ONE of the following:

12

(i) Estimate the cost of installation for flat as shown in Figure No. 2.

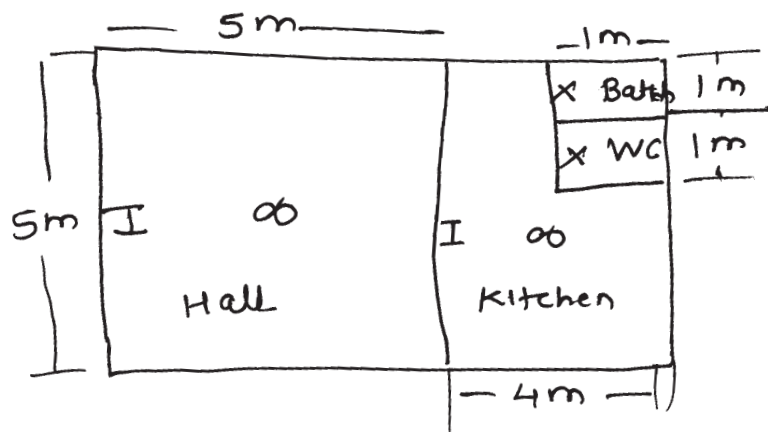


Fig. No. 2

(ii) Estimate the cost of installation for workshop as shown in Figure No. 3.

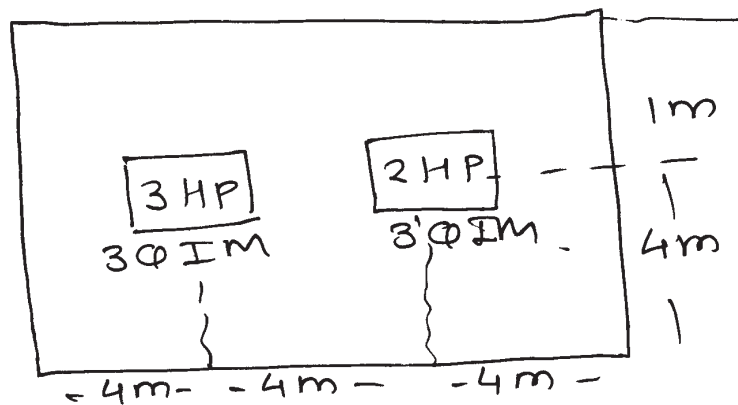


Fig. No. 3