

17416

11819

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) State IE Rule 90.
 - b) List the material required to provide underground service connection.
 - c) State the rules for light and power sub circuit in electrical installation.
 - d) State the rating of lamp, fan, socket and power socket outlet used in Residential installation.
 - e) State the purpose of following in conduit wiring.
 - (i) Conduite box
 - (ii) Elbow
 - f) List any four examples of Commercial Unit.

P.T.O.

- g) State the function of following in motor wiring circuit.
 - (i) Main switch
 - (ii) Motor switch
- h) How the length of earth wire is decided in factory unit?
- i) How to decide fuse rating in factory unit.
- j) Define the term "Contract".
- k) State the meaning of negotiated tender.
- l) Define the term Earnest 'Money deposit' and 'Security deposit'.

2. Attempt any FOUR of the following:

16

- a) Draw and label single line diagram for 3 phase induction motor connected to supply with star delta starter.
- b) Draw neat diagram with various components of service connection.
- c) State and explain conditions in Tender form.
- d) Draw and list out material of overhead service connection.
- e) Explain the meaning of following term
 - (i) Fuse link
 - (ii) MCB
 - (iii) Socket outlet of plug
 - (iv) ICDB
- f) Predict the type of starter required for the following:
 - (i) Induction motor of fractional HP rating.
 - (ii) Induction motor of rating upto 15 HP.
 - (iii) Induction motor with high rating.
 - (iv) Slip Ring Induction Motor of high rating.

3. Attempt any TWO of the following:

16

- a) A seminar hall of $15\text{ m} \times 6\text{ m} \times 4\text{ m}$ is to be fitted with 10 fan, 15 tubes and one power socket. Draw complete wiring diagram for above load and calculate total phase wire required from main board.
- b) Estimate the quantity of material and cost of installation required for the PVC casing-caping wiring system used in house. The plan of which is shown in Figure No. 1. Assume height of roof 4 m. One plug point is to be provided in each room and power socket in Bathroom.

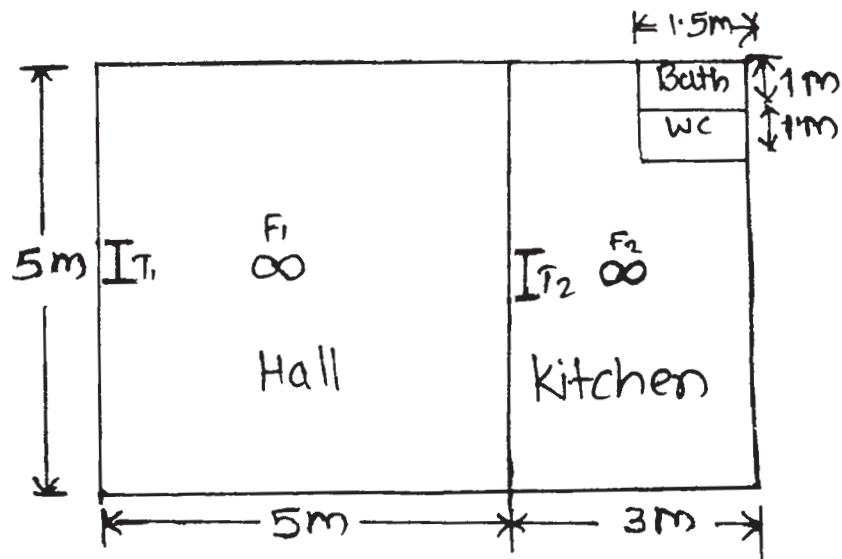


Fig. No. 1

- c) Estimate the cost of installation for workshop as shown in Figure No. 2

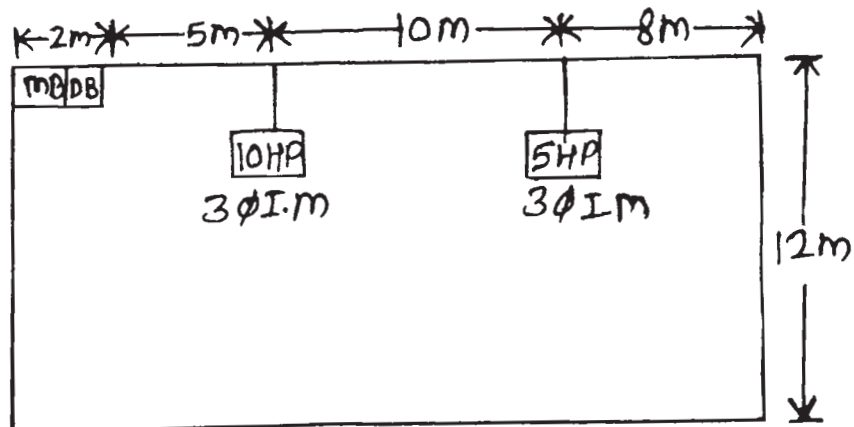


Fig. No. 2

- 4. Attempt any FOUR of the following:** **16**
- a) Differentiate between underground and overhead service connection on the basis of maintenance cost, safety, appearance and area of application.
 - b) Draw a neat labelled sketch of plate earthing.
 - c) With the help of single line diagram explain motor wiring circuit in factory unit installation.
 - d) State four essential requirements of valid contract.
 - e) State the sequence followed to prepare the estimate for a commercial electrical installation.
 - f) Draw wiring diagram and schematic diagram for control of two lights, one fan and one 3 pin socket by their individual switches.
- 5. Attempt any FOUR of the following:** **16**
- a) Compare residential and industrial installation.
 - b) State how rating of distribution boards and main switch is decided.
 - c) State the sequence followed to prepare estimation for residential electrical installation.
 - d) Compare residential and commercial electrical installation on the basis of load capacity, type of supply, initial cost and type of load.
 - e) State the procedure for selection of wire and cable rating in residential building electrification.
 - f) Draw symbols for Neutral link, Buzzer, Earth and Exhaust fan.
- 6. Attempt any FOUR of the following:** **16**
- a) Explain procedure for submission of 'Tender'.
 - b) Draw neat diagram for Busbar chamber.
 - c) What is the procedure for design consideration of electrical installation in small industry?
 - d) Explain the difference between wire and cable.
 - e) Discuss the various types of wiring.
 - f) Mention the general rules used for wiring of residential building.
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