17416

21415

3 Hours / 100 Marks Seat No. | | | | | | | | |

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) Classify electrical installation.

b) Draw symbols for:

(i) ICTP

(ii) OCB

c) Draw symbols for:

(i) push button

(ii) bell

d) Define service connection.

e) State different types of electrical wiring.

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Marks

f) State market rates for point wiring.

g) State any two differences between residential wiring and commercial wiring.

h) Explain why bus bar is required for larger installations.

i) State difference between MCB and ELCB.

j) Define term 'industrial load'.

k) Write why rating of cable depends on starting current of induction motor connection.

l) Explain why security deposit is to be deposited during tender process.

2. Attempt any FOUR of the following: **16**

a) State commercial rate of each of following for per unit:

(i) Single phase, 15 amp, ICDP

(ii) Single phase, 15 A, MCB

(iii) Flexible wire bundle

(iv) Power three pin plug.

b) State different types of contract. Explain briefly each.

c) State any four IE rules used in residential wiring installation.

d) State any four advantages and two disadvantages of underground service connection.

e) Draw a labelled diagram for underground service connection.

f) Prepare a schedule of material for underground service connection for a residential load of single phase 1.5 kW.

Marks

3. Attempt any FOUR of the following: **16**

a) Explain how number of circuits and subcircuits are determined in residential wiring.

b) State any six requirements of valid contract.

c) Explain why IE rules are framed and made compulsory for electric installations.

d) Draw a labelled diagram for overhead service connection.

e) Estimate cost of installation of overhead service connection for a residential load 1.5 kW, single phase.

f) State any eight major electrical equipments required in 11 kV HT substation.

4. Attempt any FOUR of the following: **16**

a) Draw wiring diagram for the residential load shown in Fig. No. 1.

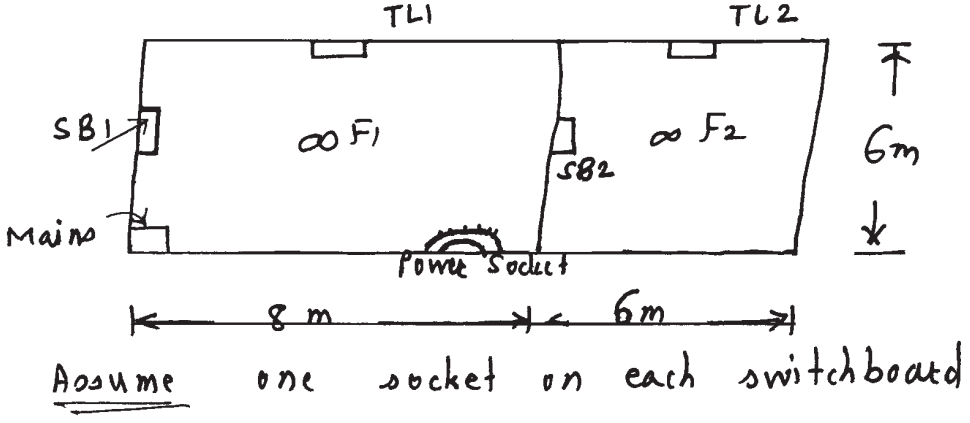

Fig. No. 1

Marks

b) Calculate total length of conduit and total length of conductor for PVC conduit wiring for the residential load mentioned in Fig. No. 1 of Q. 4 (a).

c) State any four requirements of good cable.

d) Write complete procedure of submission and opening of a tender.

e) State any four factors on which selection of contract depends.

f) Explain how comparative statement is prepared after opening of tender.

5. Attempt any TWO of the following: **16**

a) A three storeyed building has 18 shops on each floor. Each shop has electrical load of 2 fans, 4 tubelights, one power socket, one light power socket. Draw complete wiring diagram of above load.

b) (i) State any four differences between wire and cable.

(ii) State any four requirements for commercial installations.

c) Draw wiring diagram for the industrial load shown in Fig. No. 2. Show all ICTP, starters, cables with ratings. Assume suitable power factor and efficiency and squirrel cage induction motors.

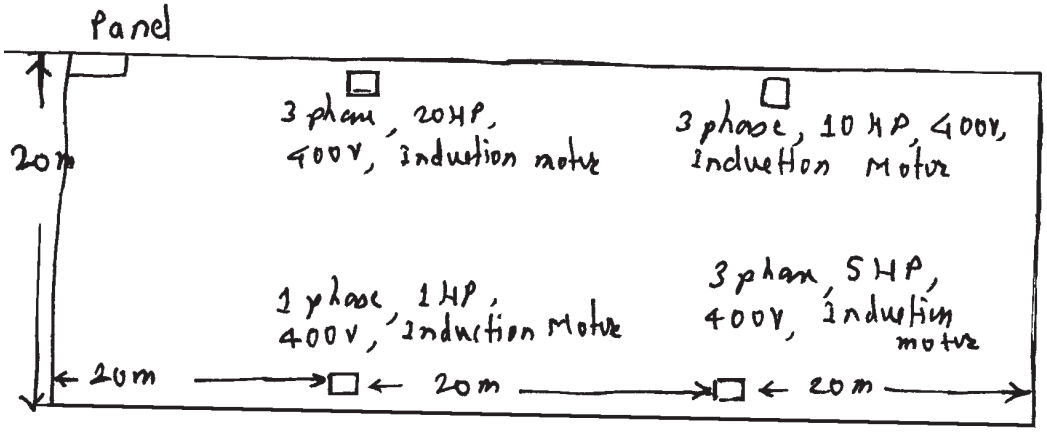

Fig. No. 2

Marks

6. a) **Attempt the following:** **4**

Calculate number of circuits for four, 3 phase, 10 HP, 400 V, squirrel cage induction motor. Justify your answer.

b) **Attempt any ONE of the following:** **12**

(i) Prepare a schedule of material for the electrical wiring of residential load shown in Fig. No. 1 of Q. 4 (a).

(ii) Prepare a schedule of material for electrical wiring of industrial load shown in Fig. No. 2 of Q. 5 (c).

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