



C14-EE-404

4464

BOARD DIPLOMA EXAMINATION, (C-14)

OCT/NOV—2017

DEEE—FOURTH SEMESTER EXAMINATION

ELECTRICAL INSTALLATION AND ESTIMATION

Time : 3 hours]

[*Total Marks* : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Write the full forms of (a) VIR, (b) TPIC and (c) CTS system of wiring.
2. What is a fuse? List out the material used for fuse element.
3. List out the accessories for surface conduit system of wiring.
4. Define service main and list different types of service mains.
5. What is meant by lighting load and power load in domestic electrical installations?
6. Draw the common wiring layout of domestic wiring installation consists of two subcircuits.
7. List the types of insulators used for overhead transmission and distribution lines.

- * 8. Write the different materials used in earth pit surrounding the earth electrode in any electrical earthing system.
9. State any two IE rules related to industrial safety.
10. List the different tests to be conducted before energising a wiring installation.

PART—B

10×5=50

Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain the procedure of first aid for shock treatment to an electrocuted person.
12. Estimate the quantity of materials required for CTS wiring system to be provided for the house plane below in Fig. 1. Provide one PowerPoint, and one 5 amp socket in each room. Height of the ceiling is 3 m, and wall thickness is 0.3 m. Assume any missing data.

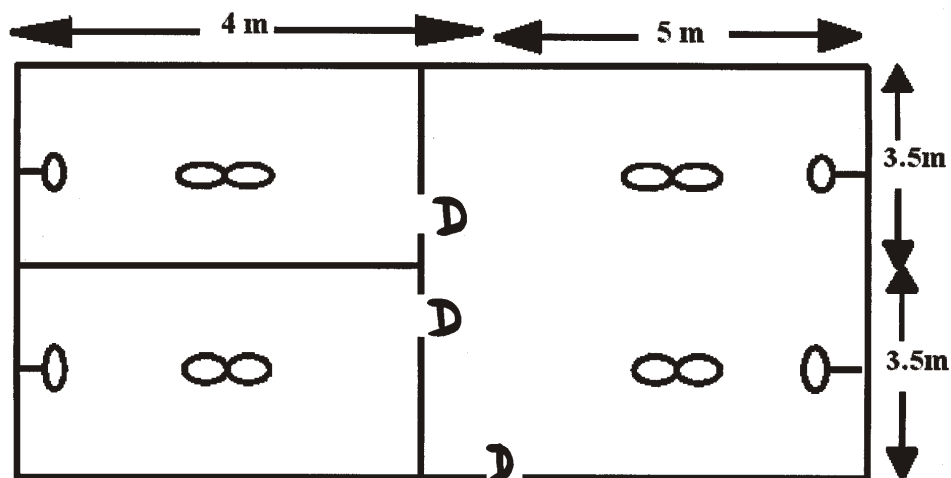


Fig.1

- * **13.** Estimate the quantity of material required to install a 15 HP, 3-phase, 400-V, 50-Hz motors as per the layout plan shown in Fig.2 below for a workshop. Draw the single-line diagram of wiring. Assume any missing data.

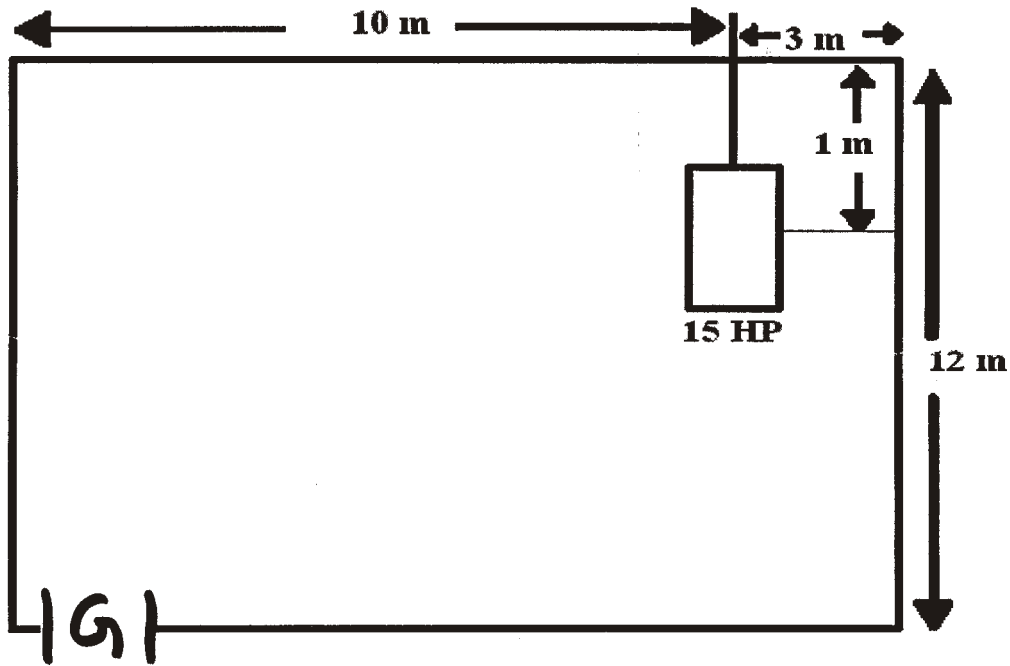


Fig.2

- 14.** An irrigation pump set of 7.5 kW is to be installed at a distance of 15 m from a 3-phase, 415 V, distribution line. The pump room dimensions are 3 m × 5 m, 3.5 m height. Efficiency and power factors are 85% and 0.9 respectively. Estimate the materials required and draw the wiring diagram.

Assume any missing data.

- * **15.** Estimate the quantity of material required for laying 400 V/230 V distribution line for 2 km in a residential area. The line feeds both 3-phase and 1-phase including street lighting. Consider two 90 degree turns and span as 45 m.

Assume any missing data.

- 16.** Draw neat sketch of plinth mount substation and list out the quantity of material required.

* **17.** Draw the neat sketch of pipe earthing and list out the quantity of material required.

18. The load particulars of a village are given below :

(a) Domestic loads 175 No. S each 500 W

(b) Industrial loads 5 No. S each 10 HP

(c) Irrigation pump sets of 20 No. S each 5 HP

(d) Irrigation pump sets of No. S each 7.5 HP

Calculate the kVA rating of the distribution transformer needed in the village to feed the load and estimate the quantity of material required. Assume diversity factor of load as 1.5.

Assume any missing data.
