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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—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)* PVC, *(b)* MCB and *(c)* TRS system of wiring. 1×3=3

2. List different types of fuse. 1×3=3

3. List out six accessories for concealed conduit wiring. ½×6=3

4. Write any three IE rules for internal wiring. 3

5. Define service main and list different types of service main. 2+1=3

6. Draw the common wiring layout of domestic wiring installation consists of two sub-circuits. 3

7. List the main components of pipe earthing. 3

8. Write any eight main components used in 440-V, 3-phase overhead distribution lines. 3

9. Specify the values of earth resistance to be maintained for the following : 1×3=3

(a) Large power station

(b) Major substations

(c) Small substations

10. List different tests to be conducted before energizing a new installation. 3

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. *(a)* Explain the reasons for not using fuse in neutral wire. 4

(b) Explain the effects of electric shock and electrocution. 6

12. Estimate the quantity of materials required for surface conduit wiring system to be provided for the house plan shown in fig.1 below. Provide one power point, 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.

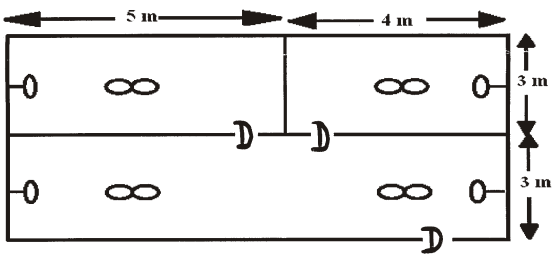

Fig.1

13. Estimate the quantity of material required to install two 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.

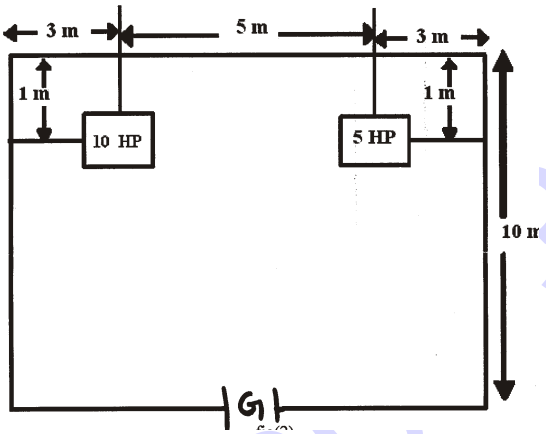

Fig.2

14. A 5-kW, submercible motor pump set is to be installed 25 m below the ground level. The pump room dimensions are 2 m × 3 m and 3·5 m height. The 3-phase, 415-V, distribution line is 10 m away from the pump room. Efficiency and power factors are 83% and 0·92 respectively. Estimate the materials required and draw the wiring diagram.

Assume any missing data.

15. Estimate the quantity of material required for laying 11 kV line for 4·5 km long. Consider two 90 degree turns, one H-structure and span as 80

Assume any missing data.

16. Estimate the quantity of material required for the installation of a 150-kVA, 11/0·4-kV, 3-phase distribution substation and draw the neat sketch of it.

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

18. Write short notes on the following :

(a) Load survey in REC

(b) Departmental procedure for obtaining a service connection

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