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BOARD DIPLOMA EXAMINATION, (C–16)

MARCH/APRIL—2018

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

1. Write the full forms of *(a)* SPST, *(b)* DPST and *(c)* TPST.

2. Why is fuse not used in neutral wire?

3. List out six CTS wiring accessories.

4. Calculate the size of cable for the given 3-phase, 5 HP, 415 volts, 50 Hz induction motor. Assume efficiency as 80% and power factor 0·8 lag.

5. What are the factors on which selection of wiring system depends?

6. Write any three general Indian electrical rules for internal domestic wiring.

7. What are the methods of reducing earth resistance?

8. Draw the single line diagram of pole mounted substation.

9. Write down the permissible earth resistance values for—

(a) 1 HP, 1-phase, 230 V, 50 Hz induction motor;

(b) floor mill of 10 HP, 3-phase capacity;

(c) 10 MW power generating plant.

10. State IE rule 33 regarding earthed terminal on consumer premises.

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 effect of electric shock and electrocution.

(b) What are the merits and demerits of concealed conduit wiring system?

12. The plan of residential building is shown in Fig. 1. It is to be provided with CTS system of wiring. Estimate the materials required. Consider wattage of lamps = 60 W, fan = 80 W, 5A socket = 100 W. Also draw the wiring diagram. Assume any missing data.

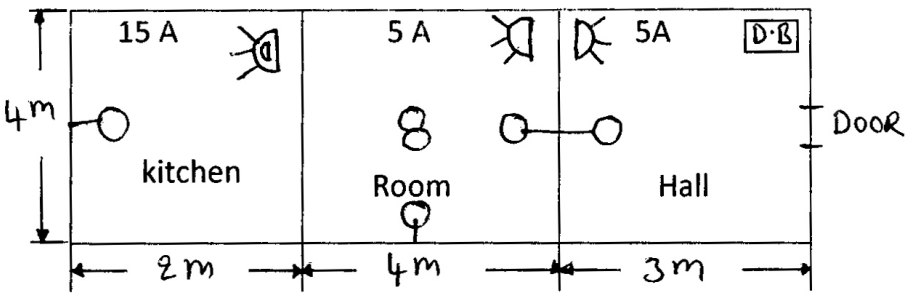

Fig. 1 : Plan of building

13. *(a)* Draw the wiring layout for a big office building.

(b) Draw the neat sketch of service line and irrigation pump set with approximate dimensions and name the important parts.

14. Two 3-phase, 400 V induction motor are installed in a workshop of plan show in Fig. 2. Make a neat single-line sketch of power wiring of the machines. Also prepare the list of materials required for the power wiring installation. Assume missing data, if any.

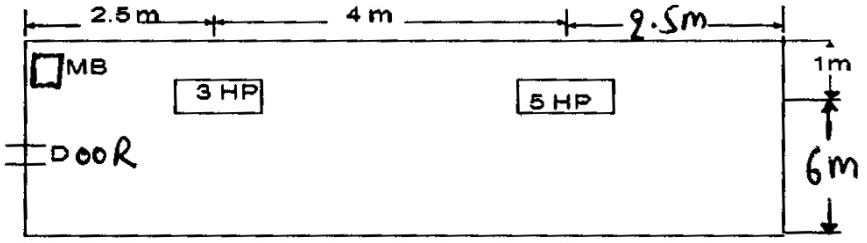

Fig. 2 : Plan of workshop

15. Estimate the quantity of materials required for laying 400 V/230 V distribution line for 1 kM in a residential area. The line feeds both 3-phase and 1-phase including street lighting. Consider one 90° turn and span as 45 m.

16. Draw a neat sketch of 63 kVA, 11 kV/400 V, 3-phase pole mounted substation and prepare the materials for the erection of above substation.

17. *(a)* Explain the necessity of earthing.

(b) Draw the neat sketch of plate earthing.

18. Describe the following tests in detail :

(a) Insulation resistance test between conductors and earth

(b) Earth continuity test

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