



C09-EE-404

3476

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2014

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. Draw the wiring diagram to control one lamp from two different locations.
2. State the merits and demerits of different systems of interior wiring.
3. Briefly explain the working of mercury vapour lamps.
4. Write the purpose of stay wire and list the materials used.
5. Write the different components used in overhead transmission lines.
6. State the main components required for pipe earthing.
7. State IE Rule 61, regarding earthing.
8. Explain load survey and state its uses in REC scheme.
9. State the defects in commutator.
10. What is meant by staggering of brushes?

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 10 HP, 415 V, 3-phase 50 Hz squirrel-cage induction motor is to be installed in a floor mill for which the plan is shown in Fig. 1. Estimate the quantity of materials required and their approximate cost. Assume any missing data.

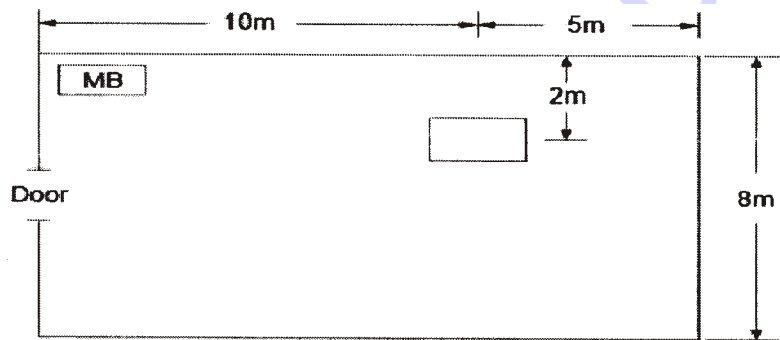


Fig. 1 : Layout of floor mill

12. Estimate the number of sub-circuits and size of main switch, distribution board and the cable required for a residential building which is provided with various electrical installations as shown in Fig. 2. Assume any missing data.

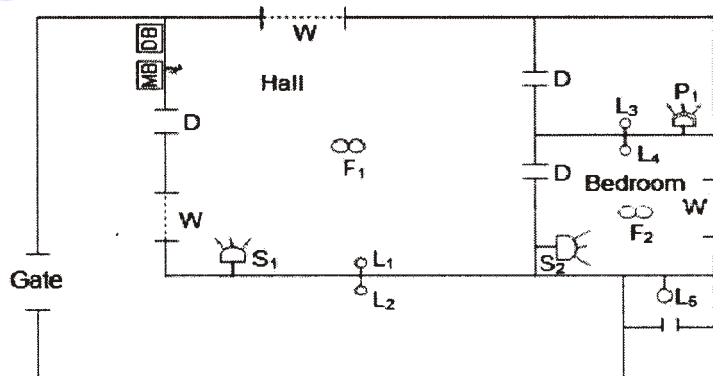


Fig. 2 : Plan

- * **13.** Prepare the quantity of materials and their cost for an agricultural pump set of 5.5 kW, 3- , 400 V squirrel-cage induction motor. The distance between the LT pole and the pump-set shed (5m 3m 3m) is 10 metres. Assume missing data if any.
- 14.** Estimate the quantity of the material for a pole mounted 11 kV/400 V sub-station.
- 15.** A new 2.5 km, 11 kV line is to be expected and connected to the existing 11 kV line. The height of the pole is 10 m. A CSR conductor of size $6/1 \times 2.11$ mm is to be used. Estimate the materials required. At least two cut points and three 90° angle points may be assumed.
- 16.** The load particulars of a village are as given below :
- (a) Domestic load, 200 No. each 300 W
 - (b) Rice Mills, 3 No. each 10 HP
 - (c) Agricultural load, 10 No. each 7.5 HP
- Take diversity factor of the load as 1.5 and calculate the kVA rating of the distribution transformer needed in the village to feed the load and estimate the materials required.
- 17.** (a) State the purpose of earthing and factors on which earth resistance depends.
- (b) Specify insulation resistance desirable for electrical installation. Write the instrument generally used for measuring the insulation resistance.
- 18.** (a) Describe the various causes of troubles and failures of core of power transformer.
- (b) What is the role of maintenance engineer?
