



C09-EE-404

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BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2016

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 layout for a sugar factory.
2. Draw the wiring diagram for go-down wiring system.
3. Draw a neat sketch of service line to irrigation pump set.
4. Calculate the number of poles and insulators required for 1.5 km length head LT line.
5. Write the classifications of earthing systems based on the applications.
6. What is the function of cross-arm in an overhead transmission line?
7. State the IE rules related to safety of industry.

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8. Write down the permissible earth resistance value for—
- 1-HP, 1-phase, 230-V, 50-Hz motor;
 - flour mill of 10-HP, 3-phase capacity;
 - 10 MW power generating plant.
9. Briefly write the cause for overheating of power transformer.
10. What are the different types of plant maintenance?

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 construction and working of sodium vapour lamp with a neat sketch. 5+5
12. Write merits and demerits of open and concealed conduit wiring system in five aspects. 2×5
13. A 10-HP, 415-V, 3-phase, 50-Hz squirrel-cage induction motor is to be installed in a flour mill for which the plan is shown in the figure below. Estimate the quantity of materials required and their approximate cost. Assume any missing data : 10

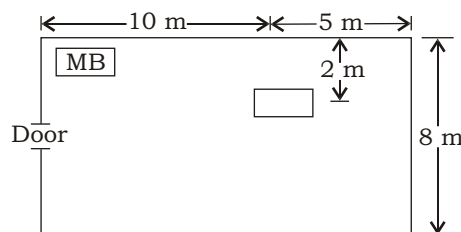


Fig. Layout of flour mill

14. Estimate the quantity of the material for a pole mounted 150 kVA, 11 kV/400 V substation. 5+5

- 15.** (a) Draw a neat sketch of plinth mounted substation and label the parts. 5+5
- (b) Calculate the total number of insulators required for 1 km length, 11 kV line and assume 2 cut points. 5+5
- 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. 10
- 17.** (a) Draw a neat sketch of pipe earthing and label the parts.
- (b) Describe procedural steps for obtaining the electrical LT service connection. 5+5
- 18.** (a) What is the role of maintenance engineer?
- (b) State the function of brushes and their requirements. 5+5
