



C09-EE-404

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BOARD DIPLOMA EXAMINATION, (C-09)

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

1. Briefly explain the working of halogen lamps.
2. Write the important materials used in installation of power loads.
3. Draw the wiring diagram of godown wiring.
4. Write the factors those decide the size of the conductor in transmission and distribution system.
5. State the materials required for erecting the 66 kVA, 11 kV/400 volts distribution transformer.
6. Write the classifications of earthing systems based on the applications.

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7. Specify the value of earth resistance to be maintained for a given electrical installation :
- (a) Large power station
 - (b) Major substation
 - (c) Small substation
8. State the IE rules for the safety of industry.
9. What is meant by staggering of brushes?
10. What is the importance of plant maintenance?

PART—B

10×5=50

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

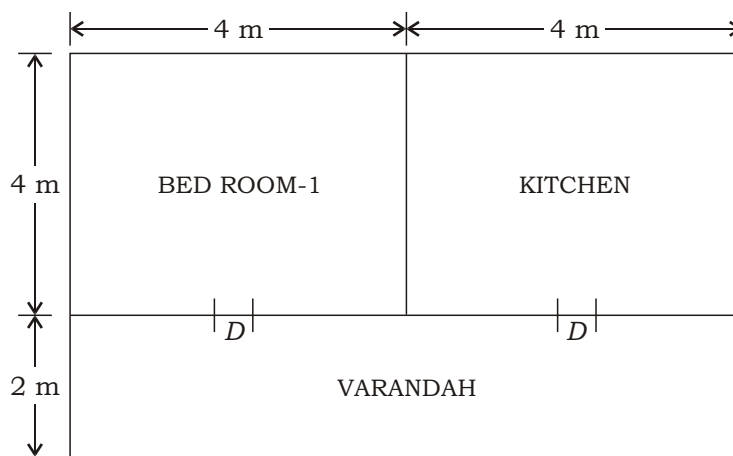
(2) Each question carries **ten** marks.

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

11. Draw wiring layout for big office building with necessary latest facilities like air-conditioner, LCD projector, meeting hall with PA system.
12. An irrigation pump set of 7.5 kW is to be installed at a distance of 20 m from a 3-phase, 415-V distribution line.
- (a) List the materials required for the service main.
 - (b) Design the specification of the materials required for the service main.
 - (c) Draw the wiring diagram from distribution pole to the motor pump set.
 - (d) Design the specification of the materials required to make wiring installation.

13. Estimate the quantity of materials to be required and their cost of materials for wiring a newly constructed residential building whose plan is shown in figure and the details of load are given in the table below :

Location	Lamp (60 W)	Tube light (40 W)	Fan (80 W)	5 A socket outlet	15 A socket outlet
Verandah	1	1	1	—	1
Bedroom-1	1	1	1	1	—
Kitchen	1	1	1	1	—



Plan of a house

Assume any missing data.

14. Draw a neat sketch of plinth mounted substation and name the parts.
15. Draw a neat sketch of suitable earthing with necessary dimensions for a 10 HP motor and prepare the quantity of materials.
16. A village has the following loads and is to be electrified :
- 50 numbers domestic connection each of 200 W
 - 18 number of agricultural pump sets each of 5 HP rating. Take efficiency of 85%, 0.8 p.f. to the pump sets.
 - Two flour mills of 10 HP capacity. Assume a diversity factor of 2, find the suitable rating of distribution and prepare the necessary quantity, estimate for the electrification of village. Assume the necessary data.

17. (a) Estimate the quantity of schedule for number of struts with 1 km, 11 kV overhead line as per IE rule.
- (b) State the standards and code of practice followed by NEC in respect of electrical installations.
18. (a) State the function of brushes and their requirements.
- (b) What is the role of maintenance engineer?
