



C09-EE-404

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**BOARD DIPLOMA EXAMINATION, (C-09)
MARCH/APRIL—2017
DEEE—FOURTH SEMESTER EXAMINATION
ELECTRICAL INSTALLATION & 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 important materials used in power installations. $\frac{1}{2} \times 6 = 3$
2. Draw the wiring diagram for series-parallel connections of lamps. $1 \times 3 = 3$
3. Draw a neat sketch of service line to irrigation pump set. $1 \times 3 = 3$
4. Write the classification of cross-arms based on type and number for 1 km length overhead LT line. $1\frac{1}{2} \times 2 = 3$
5. State the different ratings of transformers used for plinth mounted substation. $1 \times 3 = 3$
6. State the materials required for erecting 100 kVA, 11 kV/400 volts distribution transformer. $\frac{1}{2} \times 6 = 3$
7. State any two IE rules related to domestic wiring installation. $1\frac{1}{2} \times 2 = 3$

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8. Specify the value of earth resistance to be maintained for the given electrical installation : 1×3=3
- (a) Large power station
- (b) Major substation
- (c) Small substation
9. What are the different types of plant maintenance? 1×3=3
10. Write the important steps in maintenance of power transformer. ½×6=3

PART—B

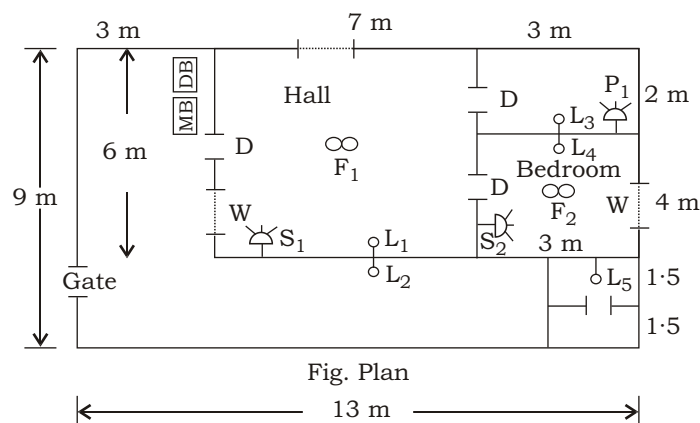
10×5=50

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. Estimate the number of subcircuits 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 the plan. Assume any missing data : 10



12. Draw the wiring layout with 6 nos power points for an electrical workshop in a polytechnic. 10
13. Explain the construction and working of mercury vapour lamp with a neat sketch. 4+6=10

14. Draw a neat sketch of suitable earthing with necessary dimensions for a domestic installation suitable for air conditioner and prepare the quantity of materials.
15. Estimate the materials required for erection of 3- , 4-wive distribution line of the length of 1.5 km and the span between the two poles is 60 m over an 8 m long PSCC poles. 10
16. Describe the procedure for the following tests with relevant sketches : 4+3+3=10
- (a) Insulation resistance
 - (b) Continuity test
 - (c) Polarity test
17. (a) Estimate the quantity of materials required for installation of sophisticated earthing system suitable for computer lab. 5
- (b) Calculate the kVA rating of a distribution transformer needed in a village having the following loads : 5
- (i) 20 nos domestic loads of 500 W each
 - (ii) Two flour mills each of 10 HP capacity, 2 nos agricultural loads each of 15 HP capacity
18. (a) State the function of brushes and their requirements. 5
- (b) Describe the various causes of troubles and failures of core-type power transformer. 5

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