C16-EE–404

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BOARD DIPLOMA EXAMINATION, (C-16)

MAY/JUNE—2023

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 form of *(a)* SPST, *(b)* DPST and *(c)* TPST.

2. State the reasons for not using fuse in neutral.

3. Define service main and state different types of service mains.

4. Draw the wiring layout of a workshop.

5. Calculate the size of the cable for the given three phase, 7.5 H.P, 400 V induction motor.

6. What is the necessity of earthing?

7. Name at least six important components of an overhead line.

8. State three reasons for fire accidents in electrical system.

9. What are the important tests to be conducted before energizing a domestic wiring installation?

10. What are the IE rules followed for domestic and power wiring systems?

PART—B

10×5=50

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

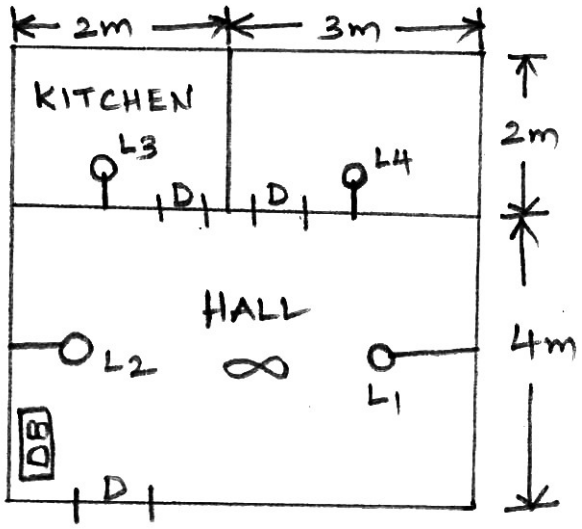
(2) Each question carries **ten** marks.

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

11. Explain CTS system of wiring with legible sketches.

12. Estimate the quantity of material and its cost for CTS system of wiring in a house, whose plan is shown in the figure below. Provide one socket in kitchen and hall. DB-Distribution Board , D-Door.

Lamp-60 W, Fan-80 W, wall thickness = 30 cm, ceiling height = 3.5 m. Assume missing data if any.



Plan of a House

13. In a workshop of size 8 m × 5 m × 4 m, a three phase, 415V, 50 Hz, 15 H.P induction motor is to be installed. The motor is 5 m away from the main switch and 1.5 m from the nearest wall.

(a) Draw the installation plan

(b) Draw the single-line diagram of wiring and

(c) Prepare the list of materials required with specifications for the above electrical wiring installation.

Assume missing data if any.

14. Estimate the quantity of material required for wiring of agricultural pump set motor 400 V, 5 kW, 50 Hz, three-phase using Star-Delta starter, ICTP switch and indicating lamps. The supply to the pump is to be taken from an overhead L.T three-phase pole, 15 m away from pump shed 5 m × 3 m × 3 m. Use conduit wiring for motor connection and show the layout of the connection.

15. Estimate the cost and material for extending a single phase distribution line of 230 V, over a distance of 500 m using 9 m height PSCC poles. Take span = 100 m, 7/2.59 AAC conductor.

16. Prepare the quantity estimate of material! and accessories required for the installation of 500 KVA, 11 KV/400 V, 50 Hz plinth mounted distribution transformer.

17. Draw a neat sketch of plate earthing and estimate the quantity of materials required.

18. Explain departmental procedure for obtaining service connection.

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