

**6443****BOARD DIPLOMA EXAMINATION, (C-16)****MARCH / APRIL — 2021****DEEE — FOURTH SEMESTER EXAMINATION****ELECTRICAL INSTALLATION AND ESTIMATION***Time : Three Hours]**[Maximum Marks : 80***PART-A**

3×10=30

- Instructions :**
- (i) Answer **all** questions.
  - (ii) Each question carries **three** marks.
  - (iii) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Mention different types of lamp holders used in electrical wiring.
2. Mention different types of cables.
3. Classify the different systems of house wiring.
4. Calculate the size of cable required for a given 3-Phase, 10 HP, 440 V induction motor.
5. Draw a wiring layout of an Electrical laboratory with 4 AC machines and 4 DC machines.
6. List the important accessories used in wiring service mains.
7. State the necessity of earthing and name the types of earthing systems in common usage.
8. Determine the number of poles and cross arms for a 11kV, 1.5 km distribution line with a span of 65 meters.
9. Explain the various tests to be conducted before giving power supply to a small scale industry.
10. Write IE rules related to domestic and power wiring system.

- \* **Instructions :** (i) Answer any **five** questions.
- (ii) Each question carries **ten** marks.
- (iii) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

**11.** Estimate the quantity of material and cost for surface conduit system of wiring for residential house shown in fig. No. 1.

Wall thickness = 40cm

Height of the roof from ground = 3.5m

Height of horizontal run = 3m

Height of distribution board = 3m

Height of switch board = 1.5m

Height of light-brackets = 3m

The details of electrical load is as under.

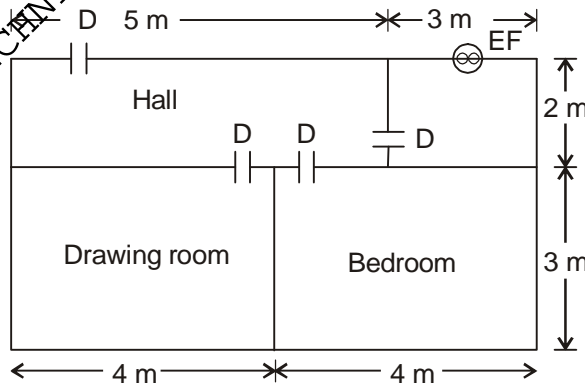


Figure No. 1

Location	Light (60 w)	Fan (80 w) $c_4$ EF (60 w)	5A plug point (80 w)	15A power plug 1000 w
Hall	1	1	1	1
Kitchen	1	1	Nil	1
Bedroom(each)	2	1	1	Nil
Drawing room	2	1	1	Nil

12. Estimate the quantity of material required to install induction motors with the following specifications in an industry. Assume missing data :
- (a) A 5 HP, 400 V, 3-Phase squirrel cage induction motor.
  - (b) A 3 HP, 400 V, 3-Phase squirrel cage induction motor.
13. Estimate the quantity of material required for installation of an agriculture pump set having 7.5 HP, 400 V, 3-phase induction motor. The height of control room is 3 meters and distance between the switch control room and the pole of low voltage distribution line is 20 meter. Draw also the neat sketch of service line. Assume missing data if any.
14. Prepare the quantity estimate of various materials and accessories required per 2 km length of a 11 kV line with 7/2.59 ACSR conductors over PSCC poles of 8 m height at 80 m span.
15. Draw a neat sketch of 150 kVA, 11 kV/400 V, 3-phase pole mounted sub-station and estimate the quantity of materials required for the erection of above substation.
16. Draw a neat sketch of suitable earthing to be provided for a 10kW industrial load and prepare the quantity estimate of material required and mention dimensions.
17. (a) Explain the departmental procedure for obtaining service connection.  
(b) Write a short note on load survey in REC.
18. Explain briefly CTS and TRS systems of wirings with neat sketches and mention the advantages and their applications.

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