



C16-EE-404

6443

BOARD DIPLOMA EXAMINATION, (C-16)

JANUARY/FEBRUARY—2022

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. In a 7/20 cable, what do 7 and 20 stand for?
2. Mention any three general rules to be followed in domestic wiring.
3. Mention any six accessories that you use in conduit wiring.
4. You have an electric geyser of 1 kW rating. How much current will it take if you use (a) a 1-ph, 230 V and (b) a 3-ph, 415 V supply?
5. What is a service main?
6. In an estimate for domestic wiring, you have two power sockets and a lighting load of 650 W. How many sub-circuits do you need?
7. List any three types of insulators used on overhead lines.

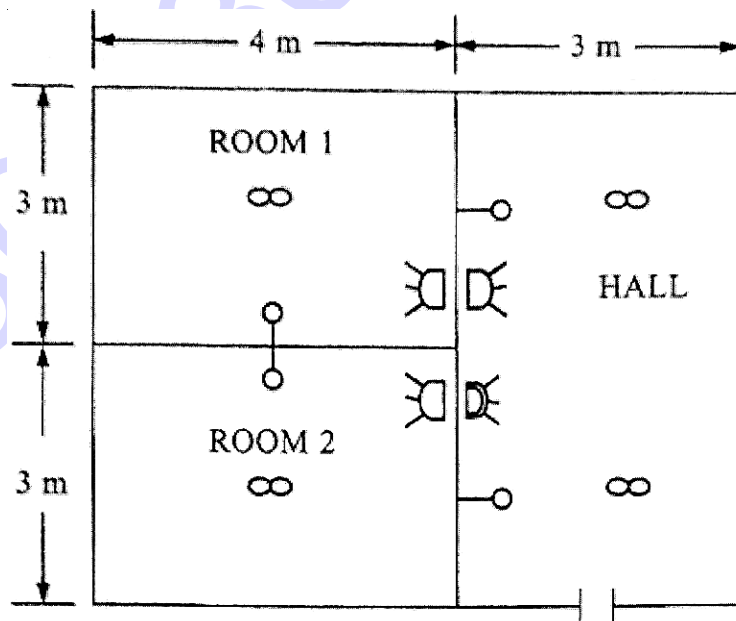
8. Why salt and charcoals are used in earthing?
9. What is the main purpose of polarity test?
10. State any three IE rules for earthing.

**PART—B**

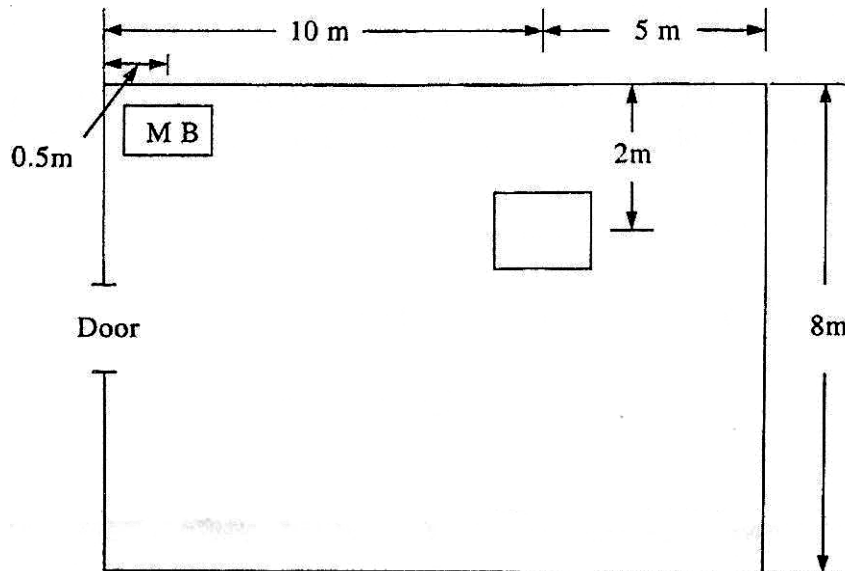
10×5=50

**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. (a) Compare TRS and conduit wiring in any five aspects.  
 (b) Describe the procedure for first aid of a person who received electric shock.
12. Estimate the quantity of materials required to make surface conduit wiring for the building plan shown in the figure below. Assume data if any required.



- 13.** A 8 kW, 3-ph, 415 V squirrel cage induction motor is to be installed in a small industry whose plan is as shown in the figure below. Estimate the quantity of materials required. Prepare the layout of wiring diagram. Assume data if any required.



- 14.** An agricultural pump set of rating 10 hp, 3-ph, 415 V motor is to be installed in a pump shed of size 4 m × 3 m × 3 m. The distance between the nearest LT pole and the shed is 12 meters. Estimate the materials required and make a single line diagram. Assume the data required if any.
- 15.** A 415 V, 3-ph, 4 wire LT line of 2.5 km length is to be laid in a town. The line has to have two turnings at 90° and an ACSR conductor of 6/1 × 2.11 mm is to be used. Estimate the materials required. Use double pole structures at the turning points. Assume a pole-pole span of 80 m.
- 16.** (a) Write short notes about the following components used in overhead lines :
- (i) Conductors
  - (ii) Poles
  - (iii) Guarding
- (b) Make a list of materials along with the numbers required for erecting a pole mounted substation.

- 17.** With a neat diagram, explain the pipe earthing and make a list of materials required.
- 18.** (a) Explain the procedure of polarity test with neat sketch.
- (b) Estimate the rating of transformer required to supply the following loads in a village :
- (i) 100 domestic loads 500 W each
  - (ii) 25 agriculture loads 5 hp each
  - (iii) 2 small workshops 5 kW each
  - (iv) 3 commercial loads 1.5 kW each

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