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**C16-EE-404****6443****BOARD DIPLOMA EXAMINATION, (C-16)****OCTOBER/NOVEMBER—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. List out six accessories for concealed conduit wiring.
2. Define following terms :
  - (a) Rated current
  - (b) Fusing current
  - (c) Fusing factor
3. Classify the cables according to voltage grading.
4. State any three merits of interior wiring systems.
5. What are the factors to be considered while selecting a system of wiring?
6. Draw the wiring layout for an electrical laboratory.
7. What are the types of insulators used in overhead lines?
8. State the purpose of earthing and types of earthing that are normally used.

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9. State IE rule 31 related to placement of cutout on customer premises.
10. Specify the values of earth resistance to be maintained for the following :
- (a) Large power station
  - (b) Major substations
  - (c) Small substations

**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) Explain the effects of electric shock and electrocution. 5
- (b) Explain the reasons for not using fuse in neutral wire. 5
12. The plan of a residential building is shown in fig. It is to be provided with concealed system of wiring. Estimate the materials required. Wattage of lamps = 60 W, Fan = 80 W, 15 A socket = 1000 W. Also, draw the wiring diagram. Assume any missing data.

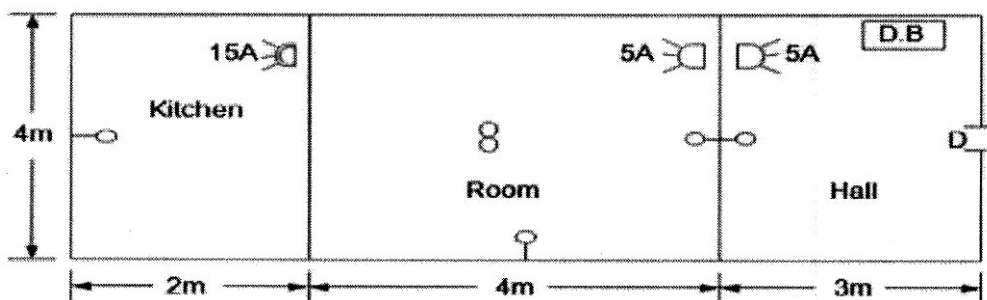


Fig. Plan of a residential building

13. A 10-HP, 415-V, 3-phase, 50-Hz squirrel-cage induction motor is to be installed in a flour mill for which the plan is shown in the figure below. Estimate the quantity of materials required and their approximate cost. Assume any missing data.

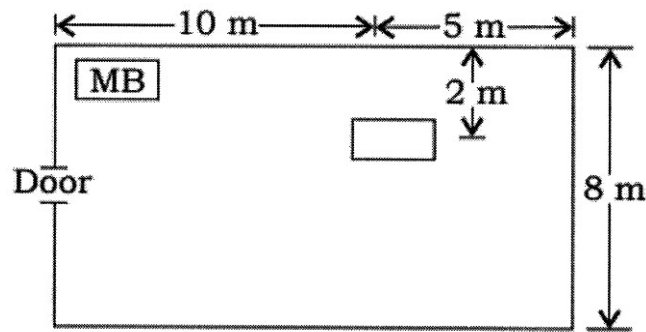
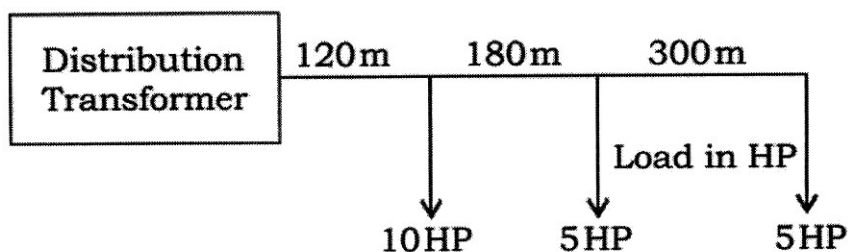


Fig. Layout of flour mill

14. Prepare the quantity of materials and their approximate cost for an agricultural pump set of 7.5 HP, 3-phase, 415 V motor. The distance between LT pole and pump shed is 10 m. The pump shed dimensions are 5 m × 2 m × 3 m. Assume missing data, if any.
15. Estimate the quantity of material for an 11 kV, 3- $\phi$  OH line with 7/2.59 mm ACSR conductors for 1 km long on 8 m PSCC poles. The span between two poles is 75 m.
16. Draw a neat sketch of 400 kVA, 11 kV/440 V, and 3- $\phi$  plinth mounted substation and estimate the materials required for erection of the substation.
17. Draw a neat sketch of pipe earthing and estimate the quantity of materials required.
18. Calculate the voltage regulation of a distribution line with 7/2.59 sq. mm ACSR conductor with the following load particulars as shown in the figure below :



Load particulars of a distribution line

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