



C14-EE-404

**4464**

**BOARD DIPLOMA EXAMINATION, (C-14)**

**SEPTEMBER/OCTOBER - 2020**

**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) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Compare CTS wiring and surface conduit wiring systems.
2. State the factors on which the choice of wiring system depends.
3. Explain why the fuse must be used in phase and must not in neutral wire.
4. Draw the wiring layout for an electrical laboratory.
5. Write any four general Indian electrical rules while preparing internal wiring estimation.
6. Calculate the size of the cable for the given 3-phase, 7.5 HP, 400 V induction motor.
7. Draw the neat sketch of stay wire and label the parts.
8. State the main components of the distribution substation.

- \* 9. Explain the need for load surveying RES.
10. What are the IE rules followed while connecting earth wire to home appliances?

**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. Mention various types of electrical wiring system. Explain any one.

12. The plan of residential building is shown in Fig. 1 :

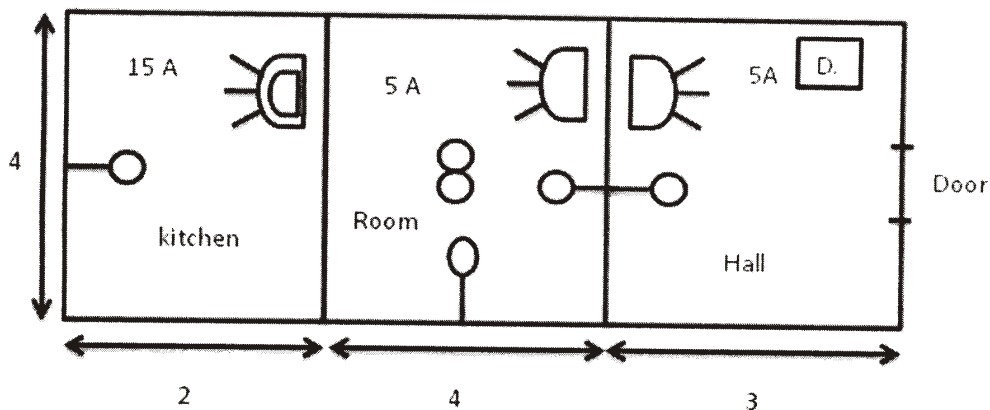


Fig. 1 : Plan of building

It is to be provided with CTS system of wiring. Estimate the material required. Consider wattage of lamps = 60 W, fan = 80 W, 5 A socket = 100 W. Also draw the wiring diagram. Assume any missing data.

13. (a) Draw the wiring layout for a big office building.
- (b) Draw the neat sketch of service line and irrigation pump set with approximate dimensions and name the important parts.

- \* 14. Two 3-phase, 400 V induction motor are installed in a workshop of plan shown in Fig. 2 :

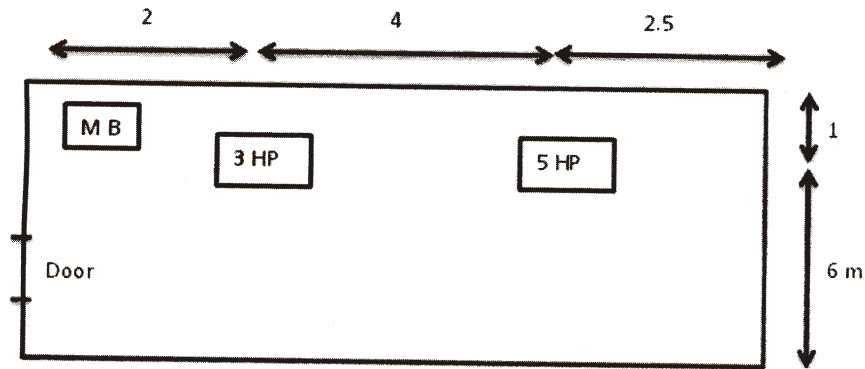


Fig. 2 : Plan of work

Make a neat single-line sketch of power wiring of the machines. Also prepare the list of materials required for the power wiring installation. Assume missing data, if any.

15. Estimate the quantity of the material required for an 11 kV, 3-phase OH line with  $\frac{7}{259}$  mm ACSR conductors for 1 km long on 8 m PSCC poles. The span between two poles is 75 m.
16. Draw and estimate the list of materials required for plinth mounted 250 kVA, 11 kV/400 V substation.
17. Draw a neat sketch of suitable earthing with all parts mentioned for a 132/33 kV substation (generating station or transmission lines) and also prepare estimation of quantity of material required.
18. Determine the voltage regulation of an 11 kV line with regulation constants 900, connecting from 33/11 kV substation. The loads connected to the line are shown in the Fig. 3 below :

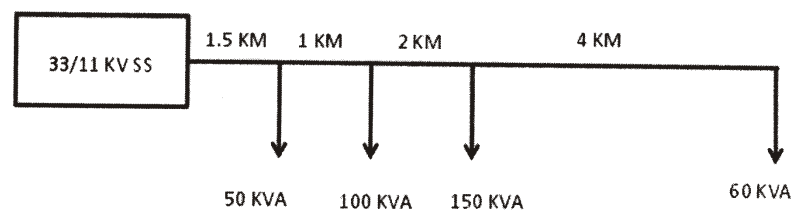


Fig. 3 : Load particulars of 11 kV line

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