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Eighth Semester B.E. Degree Examination, Jan./Feb. 2023 Electrical Estimation and Costing

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Define estimating and explain the purpose of estimation of costing. (06 Marks)
- b. Mention the different modes of Tendering and explain them. (08 Marks)
- c. Explain the following : i) Catalogues ii) Contingencies iii) Purchase system. (06 Marks)

OR

- 2 a. List the guidelines for inviting tenders. (08 Marks)
- b. Write any 6 rules of Indian Electricity Act. (06 Marks)
- c. Write a short notes on : (06 Marks)
 - i) Elèctrical schedule
 - ii) Overhead charges
 - iii) Profit.

Module-2

- 3 a. Write the different types of wiring systems and explain them briefly. (08 Marks)
- b. Draw the electrical circuit and estimate the quantity of materials required for the wiring system. Chosen in a house plan shown in Fig Q3(b). Assume the height of ceiling as 3.6m and one plug point (60W) has to be provided in each room. All dimensions in m.

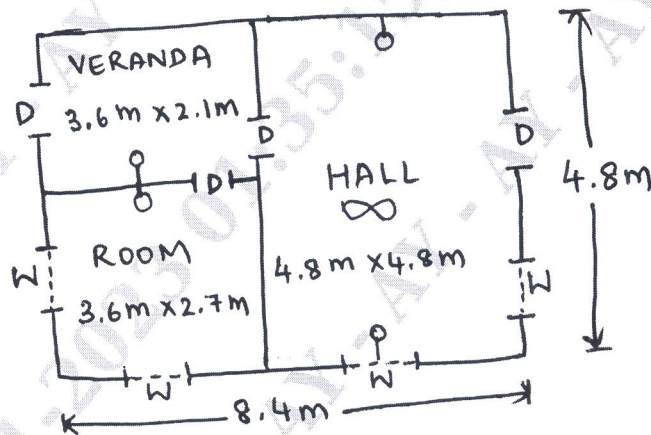


Fig Q3(b)

(12 Marks)

OR

- 4 a. Write the general rules to be considered for wiring system. (08 Marks)
- b. With reference to internal electrification of building, explain how to determine the following: (06 Marks)
 - i) Total load
 - ii) Number of sub circuits
 - iii) Rating of main switch and distribution boards.
- c. Explain the three essential points which must be considered while determining the size of the conductor for internal wiring for a given circuit. (06 Marks)

Module-3

- 5 a. Write the important consideration regarding motor installation wiring. (08 Marks)
 b. What do you understand by service line? Write down the various methods of installing service lines. (04 Marks)
 c. With simple sketches, explain any two methods of installation of overhead service lines based on the prevailing conditions of the building. (08 Marks)

OR

- 6 a. Explain the determination of input power, size of conduct, distribution board, main switch, starter size of the cable and rating of the fuse. (10 Marks)
 b. A 10HP, 415V, 3 ϕ , 50Hz, Induction motor is to be installed in a workshop the plan of which is shown in Fig Q6(b). Draw the layout of the wiring and estimate the quantity of material required. Assume motor efficiency as 85% and power factor as 0.8 lagging.

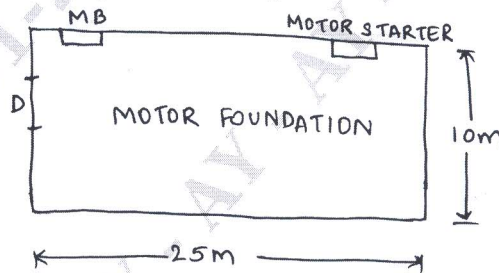


Fig Q6(b)

(10 Marks)

Module-4

- 7 a. With neat diagram, explain different types of cross arms. (06 Marks)
 b. List out the various points to be considered at the time of erection of overhead lines. (08 Marks)
 c. Explain the following: i) Guys and Stays ii) Lighting arrestors iii) Bird Guards. (06 Marks)

OR

- 8 a. Write the different types of insulators. Explain any one of them. (06 Marks)
 b. Explain the function of the following in relevance of OH transmission and distribution
 i) Phase plates ii) Beads of jumpers. (06 Marks)
 c. A pole for an overhead 11kV, 3 ϕ , 50Hz line is to be earthed and a stay is to be provided. Prepare a list of materials required. (08 Marks)

Module-5

- 9 a. Describe briefly the requirement that must be available in a substation. (10 Marks)
 b. Draw the key diagram of typical 33kV substation. (10 Marks)

OR

- 10 a. Explain the function of the following in a substation :
 i) Isolators ii) Earthing switch substation iii) Batteries. (06 Marks)
 b. Explain the purpose of substation earthing. (06 Marks)
 c. Draw the single line diagram for 10MVA, 33/11kV, substation and prepare an estimation of materials required, with their complete specification. (08 Marks)
