

# CBCS SCHEME

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15EE553

Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020

## Electrical Estimation and Costing

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. What is the purpose of estimating and costing? (04 Marks)
- b. Write a short note on : i) Contingencies ii) Overhead charges ii) Catalogues. (06 Marks)
- c. Write any six rules of Indian Electricity Act. (06 Marks)

OR

- 2 a. Define Tender. Explain modes of tendering. (05 Marks)
- b. Write a short note on : i) Purchase orders ii) Electrical schedule. (05 Marks)
- c. Explain the IE rules 29, 30, 45, 46, 47 and 50. (06 Marks)

### Module-2

- 3 a. What are the general rules to be followed for internal wiring? (06 Marks)
- b. The Fig.Q3(b) shows the plan of a low income group Government quarter. Draw the single line diagram for lighting circuit on the sketch. Calculate the total load, length of conduit pipe, estimate the quantity and cost of material. All dimensions are in meters. (10 Marks)

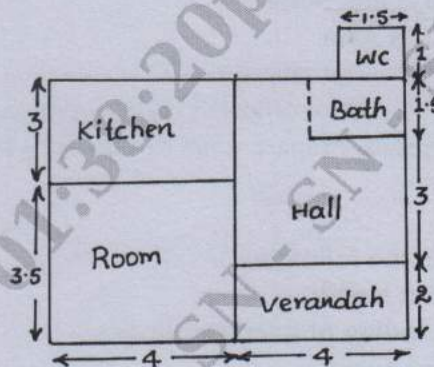


Fig.Q3(b)

OR

- 4 a. Write a short note on : i) fuse ii) cable. (04 Marks)
- b. The Fig.Q4(b) shows the plan of a small house as it is be wired in concealed system for providing lighting outlets only. Calculate the total load, length and size of wire and estimate the required materials and cost. All dimensions are in meters. (12 Marks)

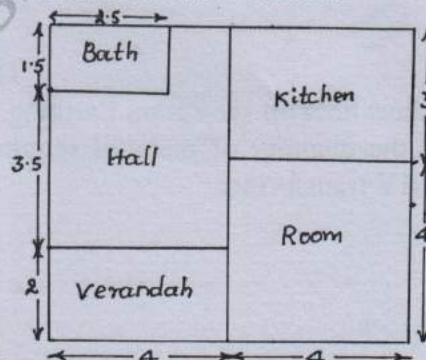


Fig.Q4(b)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg.  $42+8=50$ , will be treated as malpractice.



**Module-3**

- 5 a. Write the reasons for excess recording of energy meter. (04 Marks)  
 b. List any 6 general rules regarding motor installation wiring. (06 Marks)  
 c. Find the material required for 1-phase underground system connection to feed power supply to an AEH installation having a lighting load of 1020W and a power load of 3 KW for a distance of 10M. (06 Marks)

**OR**

- 6 a. What are the different types of service connection, list advantages and disadvantages? (06 Marks)  
 b. A small workshop has to be equipped with the following machines of inner dimensions 8m × 6m.  
 i) A 1Hp, 400V, 3-phase motor for drilling machine  
 ii) A ½ HP, 230V, 1-phase motor for grinding machine  
 iii) A 3HP, 400V, 3-phase motor for Lathe machine  
 iv) A 5KVA, 400V, Welding transformer.  
 Assume efficiency as 85% and power factor 0.8 for all machines. Draw the wiring diagram for electrical connection starting from main switch and prepare the estimate of cost for the power distribution arrangement. (10 Marks)

**Module-4**

- 7 a. Explain the following :  
 i) Guys and Stays  
 ii) Cross Arm  
 iii) Lightning arrester. (06 Marks)  
 b. A pole for an overhead 11KV, 3-phase, 50Hz line is required to be earthed and a stay is to be provided. Prepare a list of materials required and estimate the cost. (10 Marks)

**OR**

- 8 a. Explain the following :  
 i) Span length  
 ii) Guarding of overhead lines  
 iii) Bird guards. (06 Marks)  
 b. Estimate the quantity of materials required for adding 132KV bay at 132KV grid substation. (10 Marks)

**Module-5**

- 9 a. Write a short note on main electrical connection. (06 Marks)  
 b. Estimate the quantity of material and cost for installation of 10MVA, 33/11KV substation. (10 Marks)

**OR**

- 10 a. Write a short note on substation Earthing. (06 Marks)  
 b. Estimate the quantity of material required for the installation of a 400KVA indoor type, 11/0.433KV transformer. (10 Marks)

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