

# CBCS SCHEME

18EE822

## Eighth Semester B.E. Degree Examination, June/July 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 state its purpose. State the important facts which an estimation should know for preparing an internal wiring estimate. (08 Marks)
- b. Explain the following terms associated with estimation and costing :  
i) Electrical schedule    ii) Contingencies    iii) Overhead charge    iv) Profit. (08 Marks)
- c. Mention the different mode of tendering and explain open tendering. (04 Marks)

OR

- 2 a. Write the objective of purchase system. (08 Marks)
- b. What is meant by Tendering? Explain the guidelines for inviting Tender. (08 Marks)
- c. Explain IE 54 and IE 55 Rule. (04 Marks)

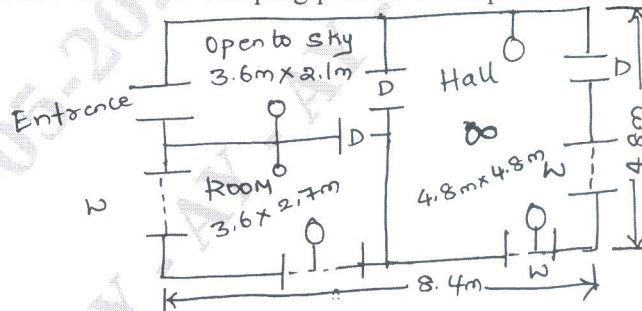
### Module-2

- 3 a. Mention the general rules for internal wiring system. (08 Marks)
- b. Explain the different system of distribution of Energy in a buildings. (06 Marks)
- c. Explain the following terms associated with internal wiring system :  
i) Vulcanized Indian rubber cable    ii) Polyvinyl chloride insulated cable. (06 Marks)

OR

- 4 a. With reference to internal electrification of building, explain how to determine the following  
i) Total load    ii) Rating of main switch and distribution board    iii) No. of sub circuit. (08 Marks)
- b. Draw the Electrical Circuit and estimate the quantity of material and their cost required for pvc casing – capping used in a house. The plan of which is shown in Fig. Q4(b). Assume the height of ceiling as 3.6 meter and one plug point is to be provide in each room. (12 Marks)

Fig. Q4(b)



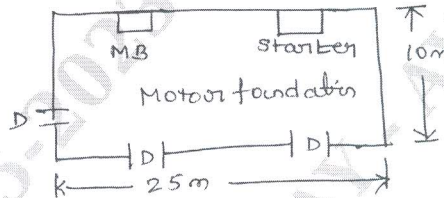
### Module-3

- 5 a. Define Service main or Service connection. What are the different type of Service connection? List the advantages and disadvantages of each type. (06 Marks)
- b. List the important consideration regarding motor installation wiring. (08 Marks)
- c. With a neat sketch, explain Low roof or Single storeyed building service line. (06 Marks)

OR

- 6 a. Explain with reference to installation of motor wiring, determination of the following :  
 i) Input power ii) Input current iii) Rating of fuse iv) Rating of cable. (08 Marks)
- b. A 10Hp. 415V, 3 phase 50Hz induction motor is to be installed in a work shop. The plan of which is shown below in Fig. Q6(b). Show the layout of the wiring and estimate the quantity of material required. The wiring is to be surface conduct. Assume motor efficiency as 85% and p.f. is 0.8 lagging. (12 Marks)

Fig. Q6(b)

Module-4

- 7 a. List the points to be considered at the time of erection of overhead line. (06 Marks)
- b. Explain the following : i) Cross arms ii) Guys and stays iii) Lightning arrestor. (08 Marks)
- c. Write the different type of insulator. Explain any one of them. (06 Marks)

OR

- 8 a. Explain what is meant by repairing and jointing of overhead ACSR transmission conductor. List the essential feature of good joints. (10 Marks)
- b. A pole for an overhead 11KV. 3 $\phi$  50Hz line is required to be earthed and a stay is to be provided. Make a neat sketch showing how it should be done. Prepare a list of material required. (10 Marks)

Module-5

- 9 a. Explain the function of the following in a substation : i) Isolators ii) Lightning arrestor iii) Circuit breaker iv) Bus bars. (08 Marks)
- b. A 10 MVA. 33KV/11KV substation is to be installed. Prepare a list of component required and draw the key diagram of the substation. (12 Marks)

OR

- 10 a. Draw the key diagram of 33KV substation with following detail and also list the material required.  
 Double bus bar with outgoing.  
 11KV line ; 3 number each  
 33KV / 11KV Transformer 2 number , 5 MVA  
 Substation Transformer 1 number  
 Capacitor bank ; 1.2 MVAR.  
 Missing data may be assumed. (12 Marks)
- b. Explain the requirement of the following in a substation :  
 1) Substation Earthing 2) Batteries 3) Instrument Transformer  
 4) Current Transformer. (08 Marks)

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