

CBCS SCHEME



17EE553

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021

Estimation and Costing

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Cable rating of Aluminum and copper conductor chart not be permitted.

Module-1

- 1 a. What is the meaning of estimating? Write the purpose of estimating and costing. (06 Marks)
- b. Write the information required for purchase order. (06 Marks)
- c. Write any four rules of Indian electricity. (08 Marks)

OR

- 2 a. Write the different modes of tender and briefly explain. (08 Marks)
- b. Explain the following :
 - i) Contingencies
 - ii) Overhead charges
 - iii) Profit. (06 Marks)
- c. Write the objectives of purchase system. (06 Marks)

Module-2

- 3 a. Write the general rule to be consider for wiring system. (08 Marks)
- b. Fig.Q3(b) shows the plan of residential building, which has to be wire up with casing and cupping wiring system calculate the following :
 - i) Show the wiring plan
 - ii) Propose load calculation
 - iii) Find the length of wire for wiring
 - iv) List the materials and find the cost.

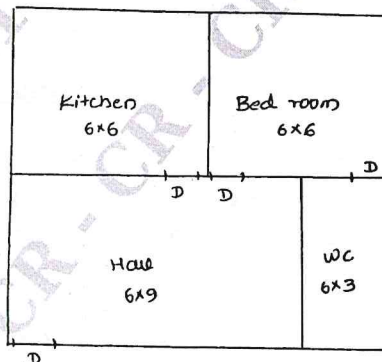


Fig.Q3(b) All dimensions are in meter

(12 Marks)

OR

- 4 a. Write the different types of wiring system explain briefly. (06 Marks)
- b. Fig.Q3(b) shows the plan of residential building which has to be wire up with conduit wiring system calculate the following :
 - i) Show the wiring plan with 1KW heating load in WC
 - ii) Propose the load calculation for heating and lighting
 - iii) Find the length of wire for wiring
 - iv) List the material and find the cost. (14 Marks)

Module-3

- 5 a. What are the different types of service connections, list the advantages and disadvantages. (06 Marks)
- b. Prepare materials required for over head service connection to home of 1.5KW load at 230V, 50Hz supply. The supply is to be given from 15m away from the home. Assume diversity factor as 1.66 and future load as 100%. (10 Marks)
- c. Find the input currents for the following machines. (04 Marks)
- 2Hp, 1 ϕ AC, 240V at 70% efficiency and 0.8pf
 - 20Hp, 3 ϕ AC, 415V at 85% efficiency and 0.85 pf.

OR

- 6 a. Write the important consideration regarding motor installation wiring. (08 Marks)
- b. A 10Hp, 415V, 3 phase, 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 materials required the wiring is to be surface conduct. Assume motor efficiency as 85% and power factor as 0.8 lagging.

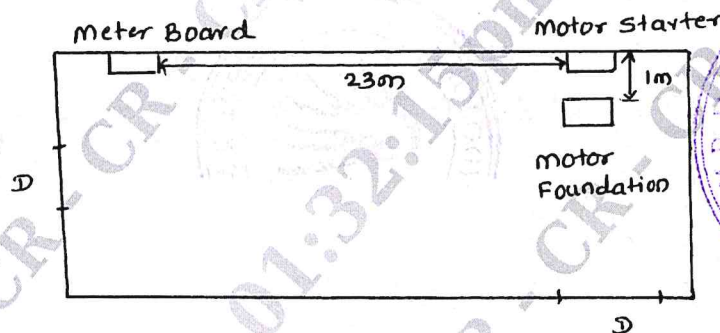


Fig.Q6(b)

(12 Marks)

Module-4

- 7 a. With neat diagram, explain different types of cross arms. (06 Marks)
- b. Write the different types of insulator explain any one of them. (06 Marks)
- c. A pole for an over head 11KV, 3 ϕ , 50Hz line is to be earthed and a stay is to be provided prepare a list of material required with quantity required. (08 Marks)

OR

- 8 a. Briefly explain erection of conductor for transmission line. (08 Marks)
- b. A overhead, 3 ϕ , 415V distributor is to be laid along a straight route 300meter long. The end supports are terminal poles with 50m span in between prepare the list of material. The following data may be used. (12 Marks)
- Conductor : ACSR 6/1 \times 2.11mm for phase, neutral and street light.
 LT cable : 4 core, 60mm², 1100V grade
 Distance of first terminal pole form the substation is 12m.

Module-5

- 9 a. Draw the key diagram of 66KV substation with following details and also list the material required :
- 66/33KV out going line : 1 number
 - 66/11KV out going line : 7 number
 - 66/33KV transformer : 16 MVA
 - 66/11KV transformer : 16 MVA.
 - Substation transformer : 1 number capacitor bank : 3.024 MVAR.
 - Missing data may be assumed.
- b. Write the main purpose of substation earthing.

**OR**

- 10 a. Draw the key diagram of 33KV substation with following details and also list the materials required.
- Double bus bar with outgoing
 - 11KV lines : 3 number each
 - 33KV /11KV transformer : 2 number, 5 MVA
 - Substation transformer : 1 number
 - Capacitor bank : 1.2 MVAR
 - Missing data may be assumed.
- b. Briefly explain instrument transformers used in substation.

(08 Marks)

(12 Marks)
