

CBCS Scheme

USN

--	--	--	--	--	--	--	--	--	--	--	--

15EE553

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018

Electrical Estimation and Costing

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Write the necessity of Estimation and Costing. (05 Marks)
- b. Explain the following : i) Catalogues ii) Purchase system. (05 Marks)
- c. Mention the different mode of Tendering and explain them. (06 Marks)

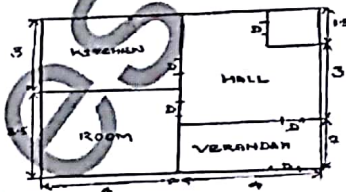
OR

- 2 a. State the important factors which an estimator should know for preparing an internal wiring estimation. (06 Marks)
- b. Explain i) Overhead charges ii) Profit. (04 Marks)
- c. Write any four rules of Indian Electricity. (06 Marks)

Module-2

- 3 a. List the general rules guide lines for residential installation. (05 Marks)
- b. Estimate the Quantity of material required for wiring a newly constructed building where plan is shown in fig.Q3(b). Assume the details of load. All dimensions are in meters. (11 Marks)

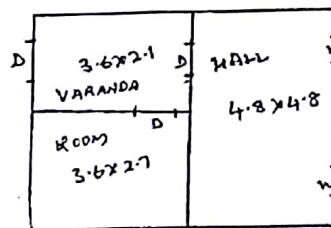
Fig.Q3(b)



OR

- 4 a. Describe the various types of cables or wires used in internal wiring of building. (04 Marks)
 - b. Draw the Electrical installation plan and estimate the Quantity of material required for the wiring system. Chosen in a house plan shown in fig. Q4(b). The height of the ceiling as 3.6m and one plug point (60 W) has to be provided in each room. (12 Marks)
- All dimensions in meter.

Fig.Q4(b)

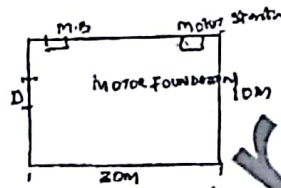


15EE553

Module-3

- 5 a. Write a short note on Service lines? (04 Marks)
 b. Write the reasons for excess recording of energy meter. (04 Marks)
 c. A 10HP, 415V, 3 ϕ , 50 Hz induction motor is to be installed in a workshop the plan of which is shown in fig.Q5(c). Show the single line diagram and estimate the quantity of material required. (08 Marks)

Fig.Q5(c)



OR

- 6 a. List any eight important consideration regarding motor installation. (04 Marks)
 b. Explain the determination of input power, size of conduit, distribution board, main switch and starter. (04 Marks)
 c. Find the materials for 1 ϕ overhead service lines of house located 10 meter away from pole with following :
 Load lighting = 300W ; Heating = 2500W. Assume safety factor = 2. (08 Marks)

Module-4

- 7 a. Explain the following : i) Cross Arms ii) Guys and Stays iii) Lighting Arrestor. (06 Marks)
 b. A pole for an overhead 11 KV, 1 phase 50Hz line is required to be earthed and a stay is to be provided. Make a neat sketch, how it should be done. Prepare a list of materials required. (10 Marks)

OR

- 8 a. Write note on Conductor erection. (08 Marks)
 b. Estimate the cost of adding 132 KV bay at 132 KV grid substations. (08 Marks)

Module-5

- 9 a. Describe briefly the equipment that must be available in a substation. (06 Marks)
 b. Prepare a list of material required for the installation of a 400 KVA indoor type 11/0.433 KV transformer. (10 Marks)

OR

- 10 a. Write short notes on Substation auxiliary supply. (06 Marks)
 b. Estimate the Quantity of material required for the augmentation of 33KV grid substation of 500 KVA to 1000 KVA 33/11 KV grid substations. (10 Marks)

Model Question Paper-I with effect from 2017-18

USN

15EE553

Fifth Semester B.E.(CBCS) Examination Electrical Estimation and Costing

(Professional Elective, E&EE)

Time: 3 Hrs

Max.Marks:80

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

Module-1

- Q1.a)** what is the purpose of estimating and costing? State the important facts, which an estimator should know for preparing an internal wiring estimate. (06 marks)
- b)** Briefly explain the Purchase Functions and Purchase objectives. (05 marks)
- c)** Write short notes on a) catalogues b) market survey and source selection. (05 marks)

OR

- Q2. a)** Define tender. Explain modes of tendering. (05 marks)
- b)** Write short notes on a) Contingencies b) Guidelines for inviting tender. (05 marks)
- c)** Explain the IE rules 29,30,45,46,47,50. (06 marks)

Module-2

- Q3. a)** What are the general rules to be followed for internal wiring. (06 marks)
- b)** The plan of a residential building which is to be provided with electric installation in PVC wiring system suitable for connection to an AC 1-phase, 240 V, 50 Hz supply is shown in fig 2.(b).Company's meter will be located in the front Verandah. Draw the single line diagram for lighting and heating circuits on the sketch. Calculate
- i) Total load, Current, length of casing & cable, and size of cable.
- ii) Determine the quantity of materials for lighting.
- Assume i) Heating load 2500 Watts. ii) Height of ceiling as 3.6 metres. (10 marks)

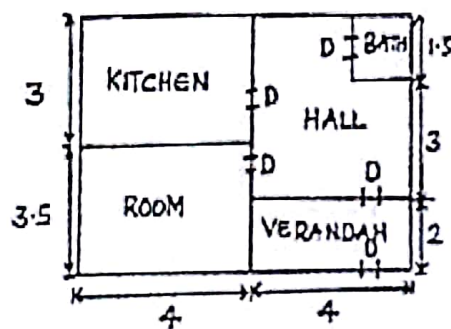
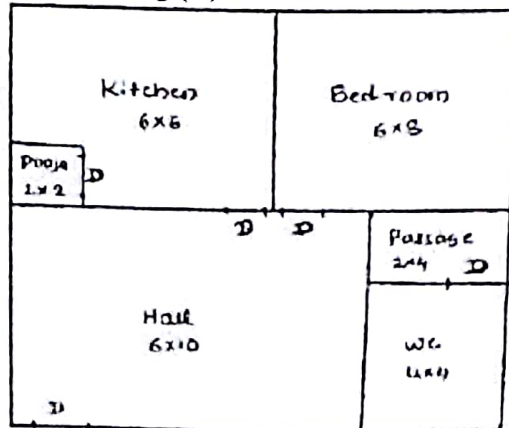


Fig. Q2 (b)

OR

- Q 4.(a) Explain the different types of wiring. (04 marks)
(b) Write a short note on a) Fuse b) Cables (04 marks)
(c) Fig Q2(b) shows the plan of residential building which has to be wire up with casing and capping 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 total cost. (08 marks)



Note: All dimensions are in mm

Fig. Q2 (b)

Module-3

- Q.5 a) what are the different types of service connection, list advantages and disadvantages? (06 marks)

b) Three ac, 3 phase, 415 V, 50 Hz squirrel cage motors are to be installed in a workshop. The rated outputs of the motors and their locations are shown in fig.5(b). Star-delta starters supplied with each motor are to be installed on the wall.

1. Make a neat sketch of the wiring scheme with the help of single line diagram indicating on the wiring diagram the number and size of cables used. Prepare also a list of material with full specifications.

2. Calculate Length of HG conduit pipe for each motor, length of PVC Cable required for each motor, total earth wire required. Assume motor efficiency 85% and power factor 0.8 (10 marks)

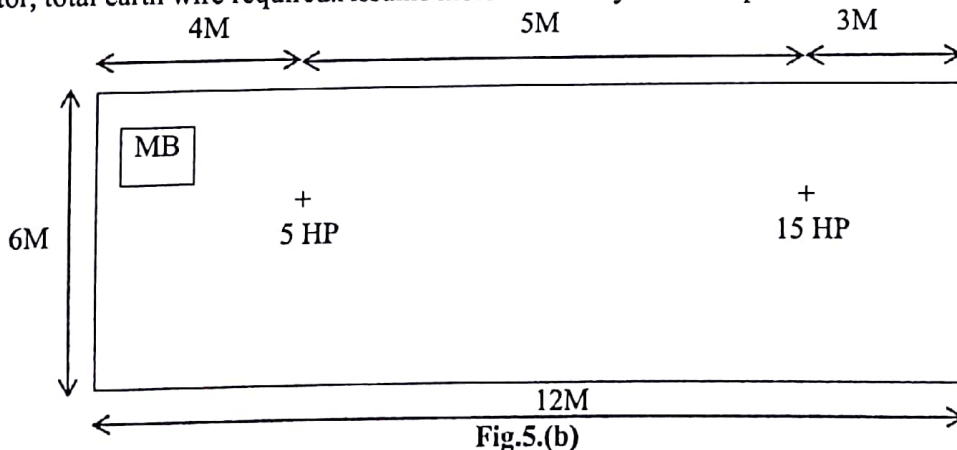


Fig.5.(b)

- Q.6 a)** List any 10 considerations regarding motor installation wiring. (06 marks)
b) Find the material required for 1-Phase overhead service line of a house located 10 meters away from pole with following loads: Light and fan load = 3000 Watts. (Assume missing data) (10 marks)

Module-4

- Q7.a)** write the main components of overhead lines. (06 marks)
b) Estimate the quantity of material required and cost of 1km of overhead 11kV 50 Hz line using steel pole of 11meter and ACSR conductor of 6/1*2.59 mm with an average span of 120m. (10 marks)

- Q.8 (a)** Estimate quantity of materials required for adding 132kv bay at 132 kv grid substation. (06 marks)
(b). explain the testing and commissioning of over head distribution line. (10 marks)

Module-5

- Q.9(a)** write different types of substation. (06 marks)
(b) Estimate the quantity of material required for installation of 132/33 KV substation with main and transfer bus scheme having 2*40 MVA transformers. (10 marks)

- Q.10(a)** What are the factors considered for selection of the site for a substation and explain. (06 marks)
(b) write the material required for 33/11 KV outdoor substation and draw key diagram with one input and 6 output lines. (10 marks)
