

# Model Question Paper-I with effect from 2017-18

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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)**

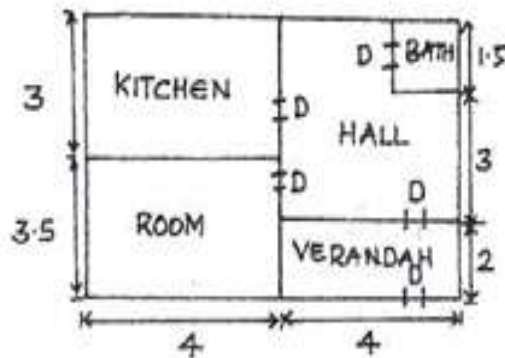


Fig. Q2 (b)

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)

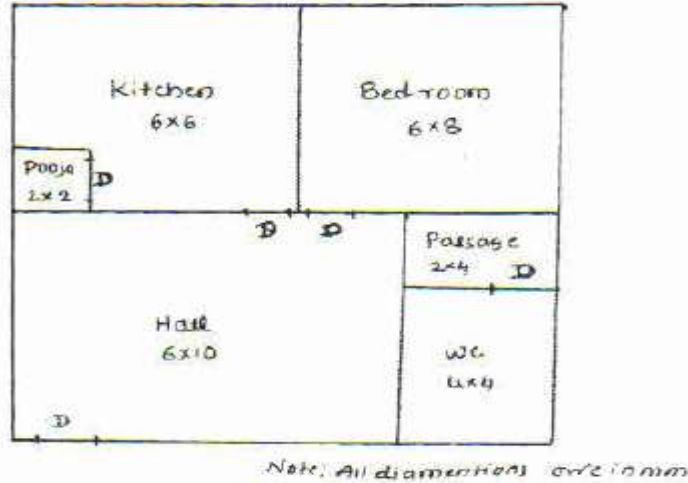


Fig. Q2 (b)

**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)

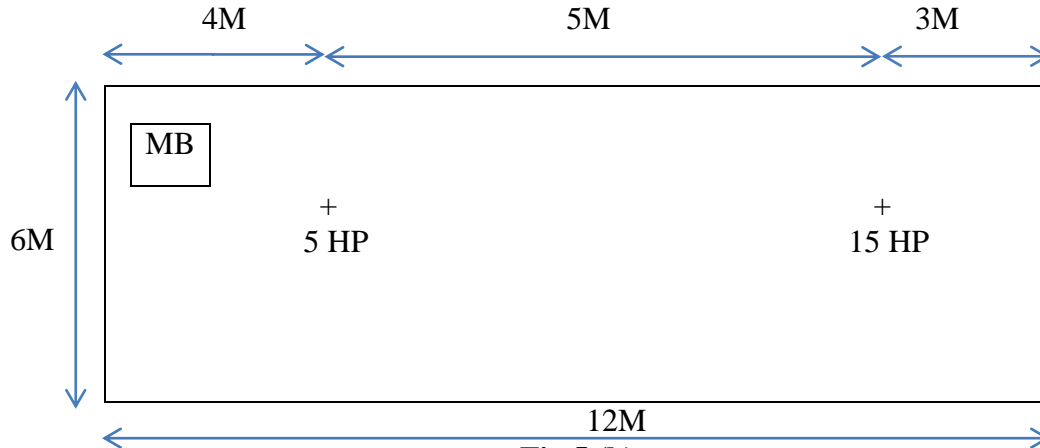


Fig.5.(b)

**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)**

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