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Eighth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Electrical Design Estimating & Costing

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART - A

- 1 a. Explain the purpose of estimation and costing. (06 Marks)
 b. Explain the functions of purchase department. (08 Marks)
 c. Explain different modes of tendering. (06 Marks)

- 2 a. What are the general rules governing for wiring of residential installation? (06 Marks)
 b. The Fig. Q2 (b) shows the plan of a low income group government quarters. Draw the single line diagram for lighting and heating circuits on the sketch. Calculate total load, length and size of the wire by taking safety factor of 2. (14 Marks)

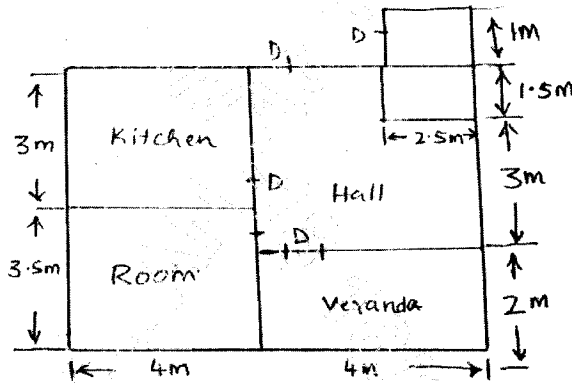


Fig. Q2 (b)

- 3 a. Explain the design considerations for electrical installation in commercial buildings. (06 Marks)
 b. Fig. Q3 (b) shows the ground floor plan of a newly constructed double storeyed school building. Show the arrangements of lamps, plug and sockets, fans in the installation plan. Estimate the quantity of the material required and the cost of electrical installation. The first floor having same plan as that of ground floor. (14 Marks)

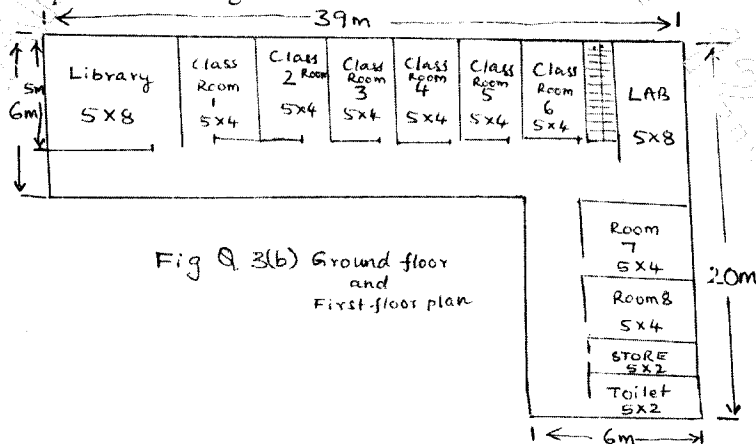


Fig. Q3 (b) Ground floor and First floor plan

Fig. Q3 (b)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.

- 4 a. Explain the points to be checked while carrying out inspection of wiring installation. (06 Marks)
- b. Mention the types of tests conducted on wiring installations. Explain the insulation resistance test in detail. (07 Marks)
- c. Prepare a detailed estimate of cost for overhead service connection to feed power supply to a cashew factory of 10 HP load for a distance of 10 m. (07 Marks)

PART – B

- 5 a. Summarize the important considerations made for motor installation wiring. (08 Marks)
- b. A 10 HP 415 V, 3 phase, 50 Hz, squirrel cage induction motor is to be installed in a factory the plan of which is shown in Fig. Q5 (b). Show the layout of the wiring and estimate the quantity of material required. The wiring is to be surface conduit. Assume efficiency of motor is 82% and power factor is 0.81 lagging. (12 Marks)

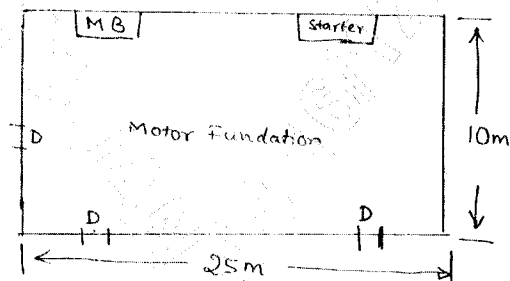


Fig. Q5 (b)

- 6 a. List the main components of overhead transmission lines. (08 Marks)
- b. A pole for an 11 KV, 3 phase, 50 Hz overhead line is situated on the bank of the road where there is no front and back for fixing the stay in the ground. This pole is to be earthed and a stay is to be provided. Prepare a list of material required and also the total cost estimation for erection. (12 Marks)
- 7 a. What are the points to be considered at the time of erection of overhead lines? (08 Marks)
- b. An overhead 11 kV, 50 Hz line has to be erected using 27 kg, 10 meter long steel poles and copper wire of size no. 3/2.642, with average span of 150 metres. Make a list of material required and estimate the cost per kilometer. (12 Marks)
- 8 a. Explain the classification of substation. (08 Marks)
- b. Estimate the quantity of material and cost for installation of 10 MVA, 33/11KV substation. Also draw the key diagram of the substation. (12 Marks)

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