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10EE81

Eighth Semester B.E. Degree Examination, Aug./Sept. 2020
Electrical Design, Estimating and 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 activities of purchase department. (06 Marks)
 b. List out guidelines for inviting tenders. (06 Marks)
 c. Write the necessity of estimating and costing. (08 Marks)
- 2 a. What are the general rules to be followed for internal wiring? (08 Marks)
 b. The Fig. Q2 (b) shows the plan of a dwelling house which is to be wired in open conduit system for providing lighting outlets only. Calculate total load, length and size of wire by taking safety factor equals to two. Draw the wiring plan. (12 Marks)

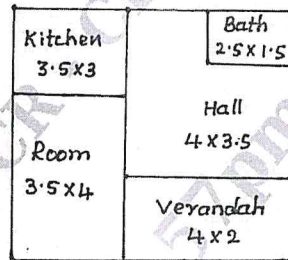


Fig. Q2 (b)

- 3 a. Differentiate residential and commercial electrification. (06 Marks)
 b. Fig. Q3 (b) shows the plan of ground floor of school building consists at ground floor, 1st floor and 2nd floor having same plan that of ground floor. Draw single line diagram for ground floor and calculate material required for three floors. (14 Marks)

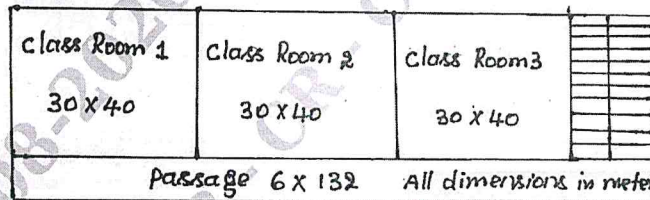


Fig. Q3 (b)

- 4 a. What are the different types of service connection, list advantages and disadvantages? (06 Marks)
 b. Name the various tests required to be performed before connecting new installation to supply. Explain how to conduct polarity test. (08 Marks)
 c. Find the material required for 1- ϕ overhead service lines of a house located 10 metres away from pole, with following loads:
 Lighting = 300 watts, Heating = 2500 watts
 Assume safety factor = 2 (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

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PART – B

- 5 a. List any eight important considerations regarding motor installation wiring. (08 Marks)
 b. In a workshop, one 15 HP (metric), 400 volts, 3- ϕ , 50 Hz squirrel cage induction motor is to be installed. Prepare the estimate of the cost required with a layout of the wiring. Show the wiring plan. (12 Marks)

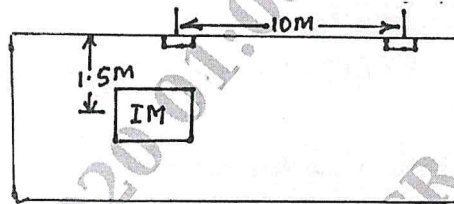


Fig. Q5 (b)

- 6 a. What are the main components of the line supports? Describe factors governing height of pole. (10 Marks)
 b. Estimate the cost of adding 132 KV bay at 132 KV grid substation. (10 Marks)
- 7 a. What are the points to be considered at the time of erection of overhead lines? (08 Marks)
 b. Estimate the quantity of material required and cost of 1 km of overhead 11 KV, 50 Hz line using steel poles of 11 metre height and ACSR conductor of $\frac{6}{1} \times 2.59$ mm with an average span of 120 m. (12 Marks)
- 8 a. Write a short note on Indoor substation? List advantages and disadvantages of outdoor substation over indoor substation. (10 Marks)
 b. Explain the different factors considered for selection and location of site for substation. (10 Marks)
