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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE – APRIL -2020.

ELECTRICAL ESTIMATING AND COSTING

(Maximum Marks :75) [Time : 2.15 hours]

PART–A

Marks

I. Answer **any three** questions in one or two sentences. Each question carries 2 marks.

1. Define luminous intensity.
2. What is the use of a ceiling rose?
3. Specify electrical symbols for (a) 5A socket (b) ceiling fan.
4. What is bus bar?
5. List any four types of components of a overhead line. (3x2=6)

PART - B

II Answer **any four** of the following questions . Each question carries 6 marks.

1. Briefly explain direct fittings.
2. Explain fluorescent lamp with diagram.
3. Estimating the number of sub circuits in a wiring installations as per IE rules for the following loads:70 watt fans-7 No, 60watt lamp-12 No,
   100 watt plug points-6 No and 400 watt refrigerator-1 No.
4. State the purpose of earthing.
5. Draw the single line diagram of a motor wiring.
6. List any three types of cross arms.
7. What are the major components of 11/0.4 KV pole mounted substation. [4x6 =24]

PART - C

(Answer **any of the three units** from the following. Each full question carries 15 marks)

UNIT I

III (a) State and explain laws of illumination. (8)

(b) Two lamps of luminous intensity 150 candela and 200 candela are mounted at 10m and 15 m respectively. The horizontal distance between the lamp posts is 30m. Calculate the illumination in the middle of the posts. (7)

OR

IV (a) Explain sodium vapour lamp with diagram. (7)

(b) A hall 12mx8mx4m is to have direct lighting giving illumination of 80 lux on the working plane 70cm above the floor. Coefficient of utilization is 0.5 and maintenance factor 0.8. Find the number of fluorescent tube lamps required and their rating . Lamp efficiency may be taken as 40 lumen per watt. Assume suitable space height ratio and draw the layout. (8)

UNIT- II

V (a) Explain different types of house wiring system. (9)

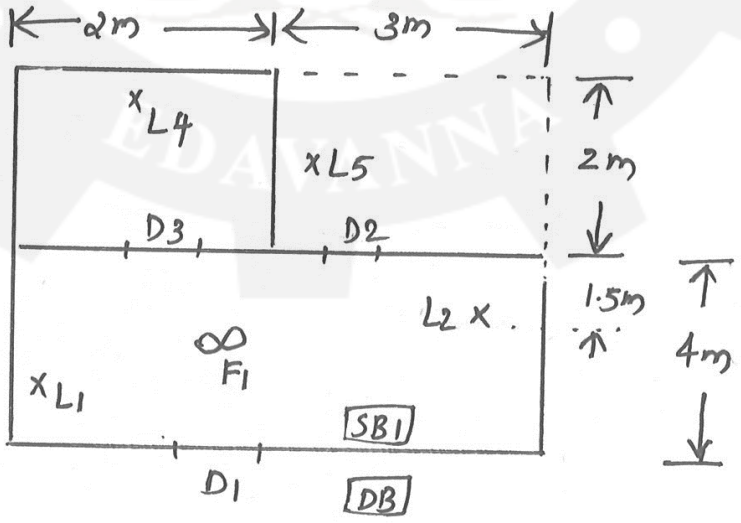
(b) Calculate the size of wire for a sub circuit consists 10 light/fan points or 800 watts. The supply voltage is taken at 230 V ac at 50 cycles/sec. (6)

OR

VI (a) Explain Neutral wire and earth wire. (5)

(b) Fig.shows the plan of a small flat. The flat is to be provided with electrical connections. The position of light and fan points and switch boards have been shown in fig.

1. Decide the number of sub circuit and show these in the installation plan.
2. Calculate the size and length of wire required.
3. Calculate the labour cost for conduit wiring system.



(10)

UNIT- III

VII (a) Explain plate earthing with a neat diagram and list out the materials required for the earth work. (8)

(b) Estimate the cost of material required for giving single phase service connection from a nearby LT pole at 10m. (7)

OR

VIII Estimate the quantity of material required for giving connection to a tubewell having 7.5 HP, 400 V, 3 phase induction motor. The height of the control room is 3.0 m. The distance between the switch control room and the pole of low voltage distribution line is 20 m. Draw also the neat sketch of the service line. (15)

UNIT – IV

IX Prepare the quantity estimate of material and electrical accessories required for erection of 63 KVA, 11 KV/400V, pole mounted distribution transformer. Clearly mention the specification necessary. (15)

OR

X Estimate the material required for laying three phase low voltage distribution line for 500 meter in a residential area. The distribution line feeds both three phaseloads and single phase loads including street lights. Take at least onecut point in the new line proposed. Assume a suitable span. (15)

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