EE & C · 2

FOURTH
~~THIRD~~ SEMESTER DIPLOMA EXAMINATION IN ELECTRICAL
AND ELECTRONICS ENGINEERING — APRIL, 2017

ELECTRICAL ESTIMATING AND COSTING

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer the following questions in one or two sentences. Each question carries
2 marks.

1. Define the term space to height ratio.

2. State the condition for selection of power sub circuit in electrical installations.

3. Name the materials used in earthing pit for a plate earthing to reduce earth resistance.

4. State the necessity of starter.

5. Name any two types of conductors used in low voltage over head lines.   (5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer *any five* questions from the following. Each question carries 6 marks.

1. In a street light scheme, two lamps having luminous intensity of 500 candela each are hung at a height of 5m. The distance between two lamp posts is 8m. Find the illumination at centre in between two lamp posts.

2. Define the terms :
   (a) Luminous efficiency   (b) Utilization factor

3. Explain the lead sheathed wiring system.

4. Estimate the number of sub circuits in a wiring installation for the following loads. Lamp 100W-10, Fan 80W-4, Plug points 100W-2, Power plug 1500W-2, Motor 1.5 HP-1.

5. Estimate full load current of motor 10 HP, 400v, 3 phase. Its efficiency is 85% and PF is 0.9.

6. Discuss about maximum permissible values of earth resistance for all installations.

7. Enumerate the major components of over head lines.   (5×6 = 30)

[P.T.O.

Marks

PART — C

(Maximum marks : 60)

(Answer *one full* question from each unit. Each full question carries 15 marks.)

Unit — I

III (a) A room 10m length and 10m width. It is illuminated by twelve 100W lamps. The luminous efficiency of the lamp is 30 lumens per watt. Coefficient of utilization is 0.45. Find the average illumination.   8

(b) With neat sketch explain working principle of sodium vapour lamp.   7

Or

IV (a) Two lamps are mounted at a height of 8m and 10m respectively. Their luminous intensity is 100 and 200 candela. Horizontal distance between lamp posts is 20m. Calculate the illumination in the middle of posts.   8

(b) Classify types of switches used in electrical installations.   7

Unit — II

V (a) A room of $6 \times 5 \times 3.5$m is to be wired from a 1 phase supply. It is to be provided with 2 lamps of 100w, one fan of 80w and one 5A socket of 100w. Draw installation plan and estimate current, number of sub circuit, length of conduit.   8

(b) Explain concealed conduit wiring system.   7

Or

VI (a) Estimate the number of sub circuit, full load current and current in each sub circuit in a wiring installation for the following loads. Lamp 60W-5, fan 80W-5 nos., plug points 100W-5 nos., power plug 1500W-2 nos., Exhaust fan 100W-2 nos., motor 1.5 HP-1 no.   8

(b) Discuss the features of wooden casing and capping wiring system.   7

Unit — III

VII With full specification sketch pipe earthing and label all details. Estimate the material required.   15

Or

VIII Sketch plate earthing and label all specification details. Estimate the material required.   15

Unit — IV

IX Estimate the cost of material for extending a single phase distribution line of 230v, over a distance of 500m using 9m PSCC poles. Take span = 100m, 7/2.59, AAC conductor.   15

Or

X Prepare the estimate of material and accessories required for erection of 63 KVA 11 KV/400V, pole mounted transformer with neat sketch.   15

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