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## **BRAINWARE UNIVERSITY**

## **Term End Examination 2024-2025** Programme - Dip.EE-2022 Course Name - Electrical Design Estimation and Costing Course Code - DEEPC601 (Semester VI)

Full Marks: 60 Time: 2:30 Hours

The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

## Group-A

(Multiple Choice Type Question)

1 x 15=15

- 1. Choose the correct alternative from the following:
- (i) Identify full safety of an electrical installation is insured when it is provided with

a) Proper insulation

b) low earth resistance

c) proper fuse in circuit

- d) All of these
- (ii) According to IE rule 77 for high voltage line, identify the height of over head line including service lines erected across the road should not be less than

a) 5.9 m

b) 6.1 m

c) 5.1 m

- d) 4.5 m
- (iii) Tell insulation resistance of a 240V installation having 10 points should not be less than

a) 5 MOhm

b) 3 MOhm

c) 2 MOhm

- d) 1 MOhm
- (iv) Identify light energy radiated by an incandescent lamp depends on

a) temperature of the filament

b) wave length of the light rays

c) size of the lamp

- d) All of these
- (v) Average lumen output of a 1000W halogen lamp is 2000 lm. Choose the approximate luminous intensity of the lamp is

a) 4000 cd

b) 3200 cd

c) 2000 cd

d) 1600 cd

- (vi) Identify glare is reduced by
  - a) increasing mounting height of lamp
- b) using diffuser
- c) using reflector to cut of the light at certain
- d) All of these
- (vii) Identify the main switch fuse 240-V.a.c. supply is

a) I.C.D.P

b) I.C.S.P. & N

c) All of the above

- d) none of these
- (viii) As per I.S.S. identify total load in a light and fan sub-circuit of house wiring installation should not be more then

	a) 1000 W. c) 600 W.	b) 800 W. d) 400 W.	
(ix)	In house wiring identify looping in method the neutral can be looped in & out from		
(v)	a) celing rows c) lamp holder	b) switch d) All of these	
	Identify the point of commencement of supply to a consumer is the  a) incoming point of the energy meter c) incoming point of the consumer's cutout Identify the type of cable is used for underground service connections		tout
(xii	a) Low tension 3 ¼ core cable c) Low tension 2 ¼ core cable ) Choose inspection at the site is carried out	b) Low tension 3 ½ core cable d) Low tension 2 ½ core cable	
(xii	<ul><li>a) after installation</li><li>c) after un-loading</li><li>i) For the transformer laminations the silicon stee</li></ul>	b) after commissioning d) after testing el applied is	
(xiv	<ul><li>a) hot rolled</li><li>c) grain oriented</li><li>r) Core with square cross section is selected for tr</li></ul>	b) cold rolled d) any of them ansformer of capacity	
	<ul><li>a) small</li><li>c) large</li><li>d) Identify the type of cable is used for overhead</li></ul>	b) medium	
	a) Low tension 3 ¼ core cable c) Low tension 3 ½ core cable	b) Low tension 2 ½ core cable d) Low tension 2 ¼ core cable	
	Group-B (Short Answer Type Questions)		3 x 5≈15
<ol> <li>Describe the construction of Single core V.I.R Cable.</li> <li>Explain the main differences between commercial and residential electrification.</li> <li>Describe the commissioning of overhead distribution lines.</li> <li>Explain the important factors for motor installation.</li> <li>Explain about Overhead charges.</li> </ol>			(3) (3) (3)
OR Explain estimating wiring involves several steps.			(3) (3)
	Gro	un C	
	Group-C (Long Answer Type Questions)		5 x 6=30
8,	<ul> <li>State and explain any three IE Act rules that are most important.</li> <li>Calculate the cross section of the primary conductors of a 75 VA, 240/12 V, 50 Hz single phase two winding transformer with current density 2.3 A/sq. mm.</li> </ul>		
10	Explain different types of wiring. 10. A main road 2km. long and 8m wide is required to be illuminated by 85w Sodium vapour lamps. The lamps are mounted on poles 10m high, so that the minimum level of illumination is 0.8 lux. Design a suitable street lighting scheme using underground cable feeder. Estimate the material required.		
	<ol> <li>Explain the guidelines of non-industrial electrification.</li> <li>Estimate the materials required for providing 240 Volt single phase service connection single storied building (load 1 kW) from a 415 Volt, 3 phase, 4 wire overhead line. The nearest pole is 4 metres away from the building.</li> </ol>		
	Explain the different circuits involved, the maximumber of sub-circuits are calculated.	OR mum rating of each circuit and how the	(5)