Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Examination December 2022 (2019 scheme)

Course Code: EET463

Course Name: ILLUMINATION TECHNOLOGY

Max. Marks: 100 **Duration: 3 Hours**

PART A

Answer all questions, each carries 3 marks. Marks

1		What are the different schemes of artificial lighting	(3)
2		What are the characteristics of good lighting scheme	(3)
3		Explain the working principle of lux meter	(3)
4		A 250 V lamp has a total flux of 1500 lumens and takes a current of 0.4 A. Calculate Efficacy of lamp and MSCP/watt	(3)
5		Explain the terms DLOR and ULOR	(3)
6		Define coefficient of utilization. List out the factors on which coefficient of utilization depends.	(3)
7		How are the projectors in flood lighting classified according to the beam?	(3)
8		What are the various light arrangement styles in street lighting?	(3)
9		List out the requirements of a good Sport lighting.	(3)
10		What are the main features to be considered in monument and statue lighting?	(3)

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

11	a)	Explain briefly the different types of lighting system based on lighting distribution	(7)
	b)	What is a glare? How it is classified	(7)

OR

12	a)	Explain with neat diagram the different types of artificial lighting system used.	(7)
	b)	Explain Colour rendering and stroboscopic effect	(7)

Module II

13 a) State and explain the Laws of Illumination (7)

b) Explain Rousseau's construction with the help of neat figure. (7)

OR

14 a) Explain with neat diagram how photometric bench is used for measuring candle power of a test lamp (7)

b) Illustrate with a neat diagram the concept of polar curve in illumination technology (7)

Module III

15 a) Illustrate at least four fixtures used for interior lighting? (6)

b) An office 30m×15m is illuminated by twin 40W fluorescent luminaires of lumen output 5600 lumens.The lamps being mounted at a height of 3m from the work place,the average illumination required is 240 lux.calculate the number of lamps required to be fitted in the office,assuming the coefficient of utilisation to be 0.6 and maintenance factor to be 0.8.Also show the arrangements of lamps (8)

OR

16 a) The total , upward and downward light output from a luminaire are1200 lm,400 lm,600 lm respectively. Find DLOR,ULOR,LOR and percentage of light energy absorbed in luminaire (6)

b) Define i) Maintenance factor, ii) Uniformity ratio, iii) Direct ratio, (iv) Coefficient of Utilization (8)

Module IV

17 a) What are the main factors to be considered while designing street/ road lighting? (6)

b) Define i)LLF ii) LLD iii)LDD (iv) EF.Also write the relationship between them (8)

OR

18 a) Determine the number of 1000W lamps needed to illuminate the front of a building 50m × 16m arranged so that uniform illumination of 90 lumens/m^2 on a surface is obtained. Assuming a luminous efficiency of 17.4 lumens/watt and a coefficient of utilization of 0.4, depreciation factor = 1.3 and waste light factor =1.2 (6)

b) Explain the two basic principles employed in street lighting? (8)

Module V

19 a) Explain the requirements of lighting to be used in Wards and operation theatres in a hospital? (10)

b) What are the objectives of aesthetic lighting? (4)

OR

20 a) Explain the design considerations for auditorium lighting. (6)

b) Discuss the features of statue and monument lighting? (8)

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