Reg No.:_____ Name:_____

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth Semester B.Tech Degree (Hons.) Examination June 2020

Course Code: EE366

Course Name: ILLUMINATION TECHNOLOGY

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1		Explain different types of illumination with suitable examples.	(5)
2		State and explain inverse square law and Lambert's cosine law of illumination.	(5)
3		Define a) uniformity ratio and b) direct ratio.	(5)
4		What are the main factors to be considered while designing street lighting?	(5)
5		Illustrate the differences between a floodlight and a spotlight with examples?	(5)
6		List out the requirements of a good flood lighting scheme.	(5)
7		What do you mean by aesthetic lighting? Explain its objectives.	(5)
8		List out five features of auditorium lighting.	(5)

PART B

Answer any two full questions, each carries 10 marks.

9	a)	Explain with neat diagram the different lighting systems employed in interior lighting.	(6)
	b)	Define the terms M.S.C.P and M.H.C.P.	(4)
10	a)	Two lamps one of 200 c.p and another of 500 c.p are hung at height of 10 m and 25 m respectively. The horizontal distance between the poles is 80 m. Determine the illumination at the mid-point between the poles on the ground.	(5)
	b)	Explain two methods of artificial lighting.	(5)
11	a)	What are the factors affecting the quality of artificial lighting?	(5)
	b)	Explain polar curve in illumination technology with the help of appropriate sketches.	(5)

PART C

Answer any two full questions, each carries10 marks.

12	a)	A road 300 m long is required to be illuminated by providing 40 watt	

fluorescent lamps. The width of road is 4 m. The lamps are mounted on poles 9 m high. Design a street lighting scheme for obtaining minimum level of illumination of 0.6 lux. Take luminous flux of fluorescent lamp be 2800 lumens and CU be 0.5. (6)

b) List out the special features for staircase and corridor lighting (4)

13 a) With neat diagram explain different types of fixtures for interior lighting. (6)

b) What are the two general principles employed in the design of street lighting installation? (4)

14 a) Estimate the number and wattage of lamps which would be required to illuminate a workshop space 60 m x 15 m by means of lamps mounted 5 m above the working plane. The average illumination required is about 100 lux, coefficient of utilisation 0.4 and luminous efficiency 16 lumens per watt. Assume the space height ratio of unity and a candle power depreciation of 20%.Also show the layout of luminaires. (6)

b) What are the main objectives of street lighting? (4)

PART D

Answer any two full questions, each carries 10 marks.

15 a) Describe the features of monument lighting. (5)

b) What are different types of flood lights used for outdoor lighting? (5)

16 a) Explain the classification of projectors in flood lighting according to the beam. (5)

b) Explain design criteria for lighting a cricket stadium. (5)

17 a) It is desired to flood the front of a building 80m x 10m. Illumination level required is 100 lux and the projectors can be placed within 20-60m distance. Coefficient of utilisation =0.4, waste light factor =1.2, depreciation factor =1.3. Available lamp specification: Tungsten Halogen 1000Watts, 20 lumen/watt. Estimate the number and size of circular projectors for the energy efficient and sustainable scheme. Also find the beam spread. (5)

b) Explain the features of lighting in different areas in a hospital. (5)

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