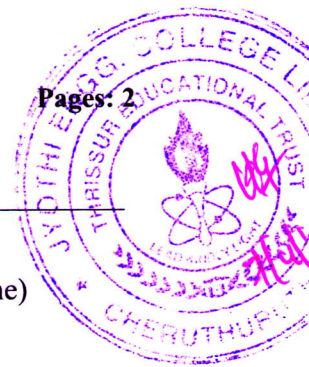Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree 7th semester (S,FE) Exam April 2025 (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 characteristics of good lighting scheme	(3)
2	What are the different types of artificial light sources	(3)
3	Explain the working principle of lux meter	(3)
4	Define MHCP and MSCP	(3)
5	A room 8 m x 12 m is illuminated by 26 fluorescent lamps 40 watts each. The average illumination was found to be 400 lux. Calculate the coefficient of utilisation. Take efficiency of lamps as 70 lumens per watt	(3)
6	Define Space to Mounting height ratio	(3)
7	Explain the main objectives of flood lighting design	(3)
8	What are the various light arrangement styles in street lighting?	(3)
9	What are the main aspects to be considered for emergency lighting?	(3)
10	Explain any three features of auditorium 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) Explain Colour rendering and stroboscopic effect   (7)

OR

12 a) Explain with neat diagram the working of incandescent lamp. Compare the lighting quality with that of LED lamp.   (7)

     b) What is a glare? How it is classified   (7)

Module II

13 a) With neat diagram explain the measurement of M.S.C.P by integrating sphere   (7)

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

OR

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

b) Explain with neat figures a.) Inverse square law b.) Lambert's Cosine law   (7)

Module III

15 a) 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   (6)

b) Illustrate at least four fixtures used for interior lighting?   (8)

OR

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

b) 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)

Module IV

17 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/m2 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)

OR

18 a) What are the main factors to be considered while designing street/ road lighting?   (8)

b) Define the terms a) Beam spread angle b) waste light factor associated with flood lighting   (6)

Module V

19 a) What are the objectives of aesthetic lighting?   (6)

b) Explain features of hospital lighting   (8)

OR

20 a) Describe any six characteristics of statue lighting   (6)

b) The Jawatrarlal Nehru Stadium, Kochi, needs a lighting renovation, list any eight features.   (8)

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