Reg No.: _____   Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B. TECH DEGREE EXAMINATION(S), DECEMBER 2019

Course Code: EE 366
Course Name: ILLUMINATION TECHNOLOGY

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions, each carries5 marks.   Marks

1.	Explain the quality of a good lighting.	(5)
2.	Define MHCP and MSCP.	(5)
3.	List good lighting practices for workplace.	(5)
4.	Explain the various types of lamps used in street lighting.	(5)
5.	Define is flood lighting. What are the types of flood lighting?	(5)
6.	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	(5)
7.	Describe the features of monument lighting.	(5)
8.	Explain the need of aesthetic lighting.	(5)

PART B
Answer any two full questions, each carries10 marks.

9. Write short note on i) shadow, ii) glare, iii) Reflection, iv) Colour Rendering, v) Stroboscopic Effect   (10)

10. a) What the different schemes of artificial lighting?   (5)

    b) State the Laws of Illumination   (5)

11. A drawing hall in an engineering college is to be illuminated with a lighting installation. The hall is 30m × 20m × 8m (high). The mounting height is 5m and the required level of illumination is 144 lm/m^2. Using metal filament lamps, estimate the size and number of single lamp luminaries and draw their spacing layout. Assume: Utilization factor = 0.6, MF = 0.75; Space/Height = 1. Lumens/ Watt for 300-W lamp = 13, Lumens/Watt for 500-W lamp = 16.   (10)

PART C
Answer any two full questions, each carries10 marks.

12. a) Define Space to Mounting height ratio. (3)

   b) A new uniform lighting system is to be installed in an industrial building. The building measures 100'×150', and has a 21' ceiling. The height of the fixture including the mounting bracket is 3' and the work plane height is also 3', so the distance from the bottom of the fixture is 15'. A zonal cavity method calculation indicates that 41.7 luminaries are required. This number is approximated to 42. Calculate (7)

         i) Spacing, S_{approx}
         ii) Approx. no. of fixture per row, N_{row}
         iii) Approx. no. of fixture per column, N_{col}
         iv) Total no. of fixtures
         v) Percentage of design illumination
         vi) Actual fixture spacing in row S_{row}
         vii) Actual fixture spacing in column S_{col}

13. a) Illustrate atleast five fixtures used for outdoor lighting? (5)

   b) Explain the various types of lamps used in street lighting. (5)

14. a) What are the requirements of a good street lighting system? (5)

   b) Explain the constraints in the selection of lamp and luminaire in street lighting. (5)

PART D
Answer any two full questions, each carries 10 marks.

15. a) How are the projectors in flood lighting classified according to the beam? (4)

   b) Describe the area of application of each type. (6)

16. a) List out any five features of hospital lighting. (5)

   b) Describe any five characteristics of statue lighting. (5)

17. a) Explain Aesthetic Flood Lighting. (3)

   b) List out the requirements of a good Sport lighting. (4)

   c) What are the main features to be considered in auditorium lighting? (3)

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