

Reg. No. _____ Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: EE366

Course Name: ILLUMINATION TECHNOLOGY

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all the questions, each question carries 5 marks

1. What are the requirements of a good artificial lighting scheme?
2. Illustrate with a neat diagram the concept of polar curve in illumination technology.
3. Explain how is photometric bench is used for measuring candle power of a test lamp.
4. Specify the need of DLOR and ULOR in artificial architectural lighting. List out three factor on which DLOR and ULOR depends.
5. What you do mean by flood lighting? List out the requirements of a good flood lighting scheme used for a football stadium.
6. LED lit luminaires are encouraged by the supply provider for various good reasons. What are the design modifications needed when LED luminaires are used for outdoor flood lighting purpose?
7. List out the design consideration while illuminating a sports area such as a tennis court.
8. What are different types of emergency lighting used in a hospital?

PART B

Answer any two questions, each question carries 10 marks

9. Explain with a neat diagram the different types of artificial lighting system used. Clearly show the amount of light thrown to up and down direction. Also specify the areas where they are commonly used. (10 marks)
10. a) What is disability and discomfort glare? Explain on VCP and UGR in connection with glare rating. (5 marks)
b) Define MHCP, MSCP? (5 marks)
11. a) Define Inverse square law in illumination. (4 marks)
b) With the help of a neat diagram explain the working of a standard radiator used as a primary standard for measuring one Candela. (6 marks)

PART C

Answer any two questions, each question carries 10 marks.

12. The Kinfra apparel park provides space area of 40 m long, 20 m wide and 8 m in height to a textile company. The luminaires are suspended 1.5 m below ceiling

level. The sewing machines are placed 1 m high from the floor level. Calculate the minimum number of luminaires which must be installed to conform a recommend SHR (Space height ratio) of 1.5 : 1. Clearly show the layout of the luminaires.

(10 marks)

13. a) What are the special features that must be taken care of while illuminating staircase and entrance way? (4 marks)
- b) With a neat diagram give the application of i) soffit fixtures ii) Recessed fixtures iii) Track fixtures and iv) Pendants (6 marks)
14. a) What are the main factors to be considered while designing street/ road lighting? (6 marks)
- b) Calculate the average illuminance on a road having 30 m width and having street light span of 30 m. The luminaire used is a sodium vapour lamp luminaire and is arranged in single side layout. The total light output of the luminaire is 5000lumens. The utilisation factor is 0.8 and the multiplication factor is 0.75. (4 marks)

PART D

Answer any two questions, each question carries 10 marks.

15. During the Onam week celebration organised by the Dept. of Tourism, it is a customary to illuminate the Kerala Secretariat Building and the arterial road in the capital city in different colours. As an illumination engineer what are the different factors which must be considered for
- i) Illuminating the Secretariat building
 - ii) The roads way aesthetic lighting
 - iii) A Statue in front of Secretariat building (10 marks)
16. List out and explain at least five features of auditorium lighting. (10 marks)
17. What are different methods available for aiming the lamp in flood lighting? (10 marks)
