

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
Sixth semester B.Tech degree examinations (S), September 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 | What are the factors that affect quality of good lighting?   | (5) |
| 2 | Explain Rouseans construction with the help of neat figure.  | (5) |
| 3 | List out the factors affecting MF and UF.  | (5) |
| 4 | What are the main factors to be considered while designing a street lighting?  | (5) |
| 5 | The front of a building should be illuminated whose area is given by $100 \times 15\text{m}$ . Illumination is 100 lux. Luminous efficiency is 18 lumens/watt, $DF=1.3$ , $CU=0.2$ and wattage of lamp is 1000W. Find the number of projectors or lamps required for the building. | (5) |
| 6 | What are the guidelines applied for the selection of flood lighting.   | (5) |
| 7 | List out the design considerations while illuminating a sports area such as a badminton court.   | (5) |
| 8 | Write about the lighting done in an operation room in a hospital.  | (5) |

**PART B**

*Answer any two full questions, each carries 10 marks.*

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|----|---|------|
| 9  | Explain with neat diagram different lighting systems of artificial lighting. Also give application of each.   | (10) |
| 10 | a) Explain laws of illumination.  | (5)  |
|    | b) Explain stroboscopic effect and glare and how its effects can be reduced.  | (5)  |
| 11 | A drawing hall $40\text{m} \times 25\text{m} \times 6\text{m}$ is to be illuminated with metal filament gas filled lamps to an average illumination of $90\text{lm/m}^2$ on a working plane 1m above the floor. Estimate suitable number, size and mounting height of lamps. Sketch the spacing layout. Assume $CU=0.5$ , $DF=1.2$ and space-height ratio =1.2. | (10) |

Size of lamps:	200W	300W	500W
Luminous efficiency:	16	18	20

(in lm/W)

**PART C**

*Answer any two full questions, each carries 10 marks*

- 12 It is desired to illuminate a drawing hall with an average illumination of 200lux. The hall is 30x20m. The lamps are to be fitted 4m from the ground floor. Find the number of lamps and wattage per lamp for the lighting scheme. Given efficiency of the lamps available as 25lm/W, DF=0.8, Cu=0.75, space-height ratio is 0.8-1.2. Give satisfactory spacing arrangement. (10)
- 13 a) Calculate space between two poles of street light having fixture watt as 250W, lamp output is 33200 lumens. Required lux is 5 lux. Width of the road is 11.8 feet. Height of the pole is 26.24 feet. CU=0.18, LLDF=0.8, LDDF=0.9. (5)
- b) Explain the features of corridor lighting. (5)
- 14 a) What are the different types of lamps used in street lighting? (5)
- b) What are the requirements of a good street lighting? (5)

**PART D**

*Answer any two full questions, each carries 10 marks.*

- 15 a) What is the importance of aesthetic lighting? (5)
- b) List out the requirements for lighting a sports stadium. (5)
- 16 a) What are the different luminaries used in flood lighting. (5)
- b) What are the different methods for aiming of lamps in flood lighting? (5)
- 17 a) Describe any 5 features of monument lighting. (5)
- b) What are the objectives of flood lighting? (5)