MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Second Sessional Examination October 2026

EET 463- Illumination Technology

(S7_EA & EB)

Max. Marks: 40 Time : 1.5 Hours

Answer all questions from Part A and Part B

PART A (4X3=12 Marks)

1. Analyze the main factors to be considered while designing an entrance lighting system for a building. [CO 3]
2. 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. [CO 3]
3. Apply the principles of street lighting design to determine the objectives that should be satisfied for a given roadway. [CO 4]
4. Explain the significance of the spacing to mounting height ratio in street lighting and analyze its effect on the uniformity of illumination. [CO 4]

PART B (2 X14=28 marks)

5. a. Explain the design considerations while illuminating staircase and corridor. (6 marks) [CO 3]

   b. An office has dimensions 20×10×3m. The ceiling to desk height is 2m. The area to be illuminated to a general is 250 lux by twin 32W fluorescent luminaire with each wattage of SHR 1.25, each lamp has an initial output of 85 lumens/Watt. Calculate the number of lamps required to be fitted in the office. Assuming the coefficient of utilisation to be 0.69 and maintenance factor to be 0.63. Also show the arrangements of lamps. (8 marks) [CO 3]

6. a. Illustrate the different types of lighting fixture arrangements used in street lighting with suitable sketches. (6 marks) [CO 4]

   b. Design a roadway lighting scheme with the following data: Width of the road way is 18 m, illumination required is 15 lux, mounting height of poles is 9m, arm length is 2m. Assume that the lamps are placed on the median at the centre of road and each lamp post carries 2 lamps, each on either side. Take coefficient of utilization as 0.6, light loss factor as 0.7. Two lamps are provided, one with 100 W and 9500 lumen and second with 150 W and 16000 lumen. Select the most suitable lamp for the design clearly indicating reason. (8 marks) [CO 4]

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Student will be able to:

CO3: Design efficient indoor lighting systems and can acquire knowledge of special features that must be taken care of while illuminating entrance, staircase, corridor lighting and industrial building

CO4: Design & analyse efficient outdoor lighting systems and can understand the problems related to design of Flood Lighting system

VISION

Endeavour to Ensure Excellence

MISSION

Mould technically competent and morally strong Engineers
Achieve dynamic leadership through quality Education
Cater the needs of industry and community through Emulation
Empower the students to serve the nation with Dedication