Total No. of Questions :10]

SEAT No. :

P3526

[Total No. of Pages :3

[4959]-1080

B.E. (Electrical Engineering)

c - ILLUMINATION ENGINEERING

(2012 Course) (End - Semester) (Semester - II) (Elective -IV) (403150)

Time : 2½ Hours] ***[Max. Marks :70***

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6,Q.7 or Q.8, Q.9 or Q.10.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain the hazards caused due to optical radiation. **[5]**

b) Explain with diagram, the D C carbon arc lamp. **[5]**

OR

Q2) a) In connection with visual mechanism and optical system explain- Accommodation, Adaption. **[5]**

b) With suitable diagrams explain salt water dimmer used for light control. State its advantages and disadvantages. **[5]**

Q3) a) State the advantages of artificial light over natural light. Also make comparison between them. **[5]**

b) State the detail classification of dimmers used for light control. Explain working of triac operated dimmer with suitable diagram. **[5]**

OR

Q4) a) Compare high pressure mercury vapour lamp (HPMV) with mercury iodide lamp. **[5]**

b) With suitable diagram explain construction and working of sodium vapour lamp. Also explain the ballast and ignitor used for this lamp. **[5]**

P.T.O.

Q5) a) Write short note on following: **[8]**

i) Industrial light fittings.

ii) Effect of quality of illumination in industry.

b) Explain how the effective illumination can be provided in the Entrance hall, Reception lobby of hotel. **[8]**

OR

Q6) a) Define following terms: **[8]**

i) Space to height ratio

ii) Maintenance factor

b) Estimate the number and wattage of lamps which would be required to illuminate a workshop- 60 × 15 meters. The lamps are mounted 5 meters above the working plane. The average illumination required is 100 lux. Coefficient of utilization is 0.4, luminous efficiency is 16 lumens per watt. Assume a space to height ratio of unity and maintenance factor 0.8. Show disposition of lamps in the plan. **[8]**

Q7) a) Explain any FOUR of following terms regarding street lighting: **[8]**

i) Visual performance

ii) Visual comfort

iii) Contrast

iv) Glare

v) Uniformity ratio

vi) Field of vision

b) With diagram, explain any Four arrangements of luminaries on straight roads: **[8]**

i) Single sided arrangement

ii) Staggered arrangement

iii) Opposite arrangement

iv) Central verge arrangement

v) Catenary suspension

OR

Q8) a) State classification of projectors used for flood lighting. With suitable diagrams explain the different locations of flood light projectors. **[8]**

b) A building frontage 50m × 15 m is to be illuminated by flood lighting projectors installed 25 meters away. The illumination is 100 lux, coefficient of utilization is 0.5, depreciation factor is 1.5, waste light factor is 1.2, luminous efficiency is 17 lumen per watt for a 1000watt lamp. Estimate the number of projectors. **[8]**

Q9) a) Explain following ways to transport sun-light. **[9]**

i) Reflective conduit light tube

ii) Light tube dome

iii) Light tube diffuser

b) Explain the use of lamps for following non-lighting purposes: **[9]**

i) Domestic heating

ii) Space heating

iii) Light for insect -traps

OR

Q10)a) What is a fiber optic guide? With suitable diagram explain any one type of fiber optic guide. **[9]**

b) Explain working of organic light emitting diode (OLED) with suitable diagram. State the advantages of OLED over flat panel displays. **[9]**

EEE