Scheme – I

Sample Question Paper

Program Name : **Electrical Engineering Program Group**

Program Code : **EE/EP/EU**

22530

Semester : **Fifth**

Course Title : **Illumination and Electrification of Buildings (Elective)**

Max. Marks : **70** **Time: 3 Hrs.**

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Sub-questions in a main question carry equal marks.
(5) Assume suitable data if necessary.
(6) Preferably, write the answers in sequential order.

Q.1) Attempt any five of the following. **10 Marks**

a) State different types of electronic dimmers available for illumination control.

b) Compare the salient features of mercury vapour lamp and sodium vapour lamp based on (i) lamp efficiency (ii) lumen output

c) State the different types of arc lamps.

d) State any two methods used for light control.

e) Explain the concept of photometry.

f) State the recommended illumination level for
i) library and (ii) operation theatre.

g) Name any two lamps used in video films.

Q.2) Attempt any three of the following. **12 Marks**

a) State any four effects that can be obtained by lighting on stages.

b) Illustrate with neat wiring diagram a single lamp control by two point method.

c) Explain the working of HID lamp.

d) State the factors to be considered while selecting a lamp for a particular application.

Q.3) Attempt any three of the following. **12 Marks**

a) Write any four safety measures and precautions to be followed for a special purpose lamp.

b) Explain the working of fluorescent lamp.

c) Write any four design considerations for illumination scheme of industrial premises.

d) Explain the working principle of transformer dimmers with the help of a neat sketch.

Q.4) Attempt any Three of the following. **12 Marks**

a) Select illumination level required as per ISI for following working plane in residential building i) kitchen, ii) living room, iii)dining room and iv)study room.

b) Explain lighting scheme to be designed for each of following i) operation theatre in hospital and ii) general ward in hospitals.

c) Analyze effects of variation of supply voltage on performance of CFL, as regards current, lumen output, efficacy and life.

d) State the purpose of lighting control. List different types of dimmers. Explain any two dimmers with suitable diagrams.

e) Explain with a neat diagram “flood lighting".

Q.5) Attempt any Two of the following. **12 Marks**

a) Classify different lighting calculation methods and explain any one.

b) Estimate the total number of lamps required for a living room of a residence having area 16m x 10m.Assume utilization factor of 0.8,maintenance factor of 0.8 and lumens output of each lamp of 1500.

c) State importance of light house in shipyards and describe the working of the light house illumination system.

Q.6) Attempt any Two of the following. **12 Marks**

a) Explain the luminaries in operation theatre of a hospital and the lux level required.

b) Explain control of a single lamp from four places. Draw relevant circuit diagram

c) A uniform illumination of 150 lux is to be obtained on the floor of room measuring 15m x 15 m by arranging electric light suitably .Calculate no of lamps and wattage of each lamp if lamp efficiency is 20 lumens /watt .Assume and write suitable value of constants required for this calculation.

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Program Name : **Electrical Engineering Program Group**

Program Code : **EE/EP/EU**

22530

Semester : **Fifth**

Course Title : **Illumination and Electrification of Buildings (Elective)**

Max. Marks : **20** **Time: 1 Hour**

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Sub-questions in a main question carry equal marks.
(5) Assume suitable data if necessary.
(6) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. **08 Marks**

a. Define following terms i) lux and ii) lumens.

b. Write two uses of photometry.

c. List any two applications of halogen lamps.

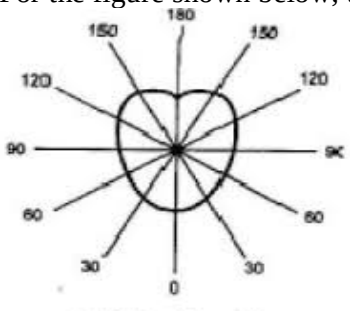
d. State the factors considered for selection of mounting of florescent lamp in residential area.

e. Design a control circuit for LED using atriac.

f. State any two methods used for enhancing lighting control.

Q.2 Attempt any THREE. **12 Marks**

a. For the figure shown below, answer the following:



i) Identify the curve (ii) State the type of the curve and (iii) Give its applications.

b. Draw a neat labelled diagram of neon sign tube and explain its working.

c. Give comparison between LED and CFL lamps. (Any four points).

d. Explain the dimmer by using two winding transformer.

e. Explain the different controlling methods for enhancing interior applications..

Scheme – I

Sample Test Paper - II

Program Name : **Electrical Engineering Program Group**

Program Code : **EE/EP/EU**

22530

Semester : **Fifth**

Course Title : **Illumination and Electrification of Buildings (Elective)**

Max. Marks : **20** **Time: 1 Hour**

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Sub-questions in a main question carry equal marks.
(5) Assume suitable data if necessary.
(6) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. **08 Marks**

a. State any two objectives of design of street lighting.

b. Write two factors to be taken into account while designing the Flood lighting.

c. List the special purpose lamps used in photography.

d. State any two differences between uniform lighting and localised lighting.

e. State any two applications of decorative lighting..

f. Name any two lamps with their ratings used in horticulture.

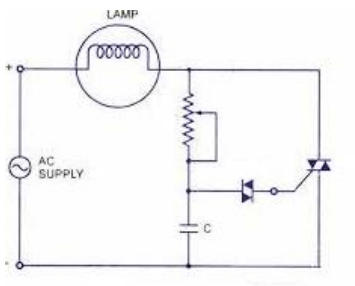
Q.2 Attempt any THREE. **12 Marks**

a. State the possible location of mounting a projector in flood lighting with a neat sketch.

b. Explain the general principles employed in the design of street lighting.

c. Design an illumination scheme for a workshop with an area of 80 x 20 m in size. Assume a suitable space height ratio, utilisation factor, and depreciation factor. Consider a lamp efficiency of 20 lumens / watt.

d. Identify the figure. Label its parts and state its working.



e. Identify the lamp and label its parts.