22530

12425

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following : **10**

(a) Define each of following terms of illumination-lux, lumen, luminous flux, illumination.

(b) State any two advantages of LED lamp.

(c) State different types of electric dimmer.

(d) State the recommended illumination level of

(i) classroom

(ii) college library

(e) State any two methods used for light control.

(f) Name any two types of lamps used in decorative lighting.

(g) Name any two lamps used for aquariums.

2. Attempt any THREE of the following : **12**

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

(b) Compare LED lamp with fluorescent lamp with reference to (i) life (ii) Running cost (iii) Luminous efficiency (iv) C.R.I.

(c) Explain the working of Electronic thyrister operated dimmer with the help of diagram.

(d) Elaborate the points of selection of luminaries for interior lighting.

3. Attempt any THREE of the following : **12**

(a) State any four benefits of good industrial lighting.

(b) Explain working of sodium vapour lamp.

(c) Explain with a neat sketch working of

(i) Resistance type dimmer

(ii) Salt water dimmer

(d) Meaning of flood lighting. State the purpose of flood lighting.

4. Attempt any THREE of the following : **12**

(a) State illumination level in lux as per ISI for residential purposes in following places :

(i) Bedroom

(ii) Living room

(iii) Kitchen

(iv) Dressing table

(b) Describe working of glass envelope type neon lamp with neat sketch.

(c) Explain with circuit diagram the Working of TRIAC operated dimmer.

(d) Draw control circuit for

(i) One lamp controlled from one point.

(ii) Two lamps controlled by 2 switches.

(e) State the requirement of illumination scheme for shipyard.

5. Attempt any TWO of the following : **12**

(a) State the meaning of polar curve with suitable diagram. Also give its application for designing lamps.

(b) Illustrate with neat diagram a staircase wiring and draw the truth table according to position of switch and lamp condition.

(c) State the requirement of illumination scheme for (i) sport lighting (ii) railway lighting and suggest the lamps for above locations.

6. Attempt any TWO of the following : **12**

(a) Estimate the number and wattage of lamps which is required to illuminate a workshop space 80 m × 30 m by means of lamps mounted 8.5 m above working plane. The average illumination is 90 lux, co-efficient of utilization is 0.48, luminous efficiency 20 lumens per Watt. Assume a space to height ratio of unity maintenance factor 0.9.

(b) State which types of lamps should be selected for following applications ?

(i) Stage lighting

(ii) Flood lighting

(iii) Advertisement

(iv) Street lighting

(v) Railway lighting

(vi) Aquarium lighting

(c) Enlist the luminaries used and lux level required in fatory lighting for following areas :

(i) Office Building

(ii) Workshop

(iii) Testing centre

(iv) Quality control department

(v) Store room without sunlight

(vi) Outdoor parking area
