22530

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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.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

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

(a) State the difference between the dimming control and the ON/OFF control in the lighting control.

(b) State the types of lamps suitable for the following application :

(i) Cinema Projector

(ii) Industrial Lighting

(c) State any two advantages and disadvantages of a CFL lamp.

(d) Draw a connection diagram of single lamp control by the two-point method.

(e) State inverse square law of illumination.

(f) Select the illumination level required as per IS for the following working plane :

(i) Stair

(ii) Workshop

(g) List out four important characteristics of factory lighting.

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

(a) Describe any four desirable characteristics of lighting required for an aquarium. State any two lamps used in it.

(b) Explain the working of the thyristor-operated dimmer with its neat circuit diagram.

(c) Describe the construction and working of HPMV with a neat circuit diagram.

(d) Compare filament lamps with CFL on the basis of (i) Life (ii) Power Consumption (iii) Cost (iv) Energy Efficiency.

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

(a) Explain any four requirements of the illumination of shipyard areas and state the types of lamps used in the shipyard.

(b) Explain the construction and working principle of sodium vapour lamp with neat diagram.

(c) Compare industrial lighting and commercial lighting.

(d) Explain the construction and working of the salt water dimmer with its neat diagram.

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

(a) State and explain the general requirements and economical requirements of the illumination scheme for interior application.

(b) Explain the design consideration of residential lighting and state any two types of luminaries used in it.

(c) State and explain different types of lighting schemes with a required sketch.

(d) Explain with a neat sketch, a single lamp controlled by three-point method.

(e) State and explain the design consideration of railway platform lighting and state the types of lamps used for it.

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

(a) A room of 30m * 10m is illuminated by 30 numbers of 200 W lamps. The MSCP of each lamp is 250. If the utilization factor is 0.62 and the depreciation factor is 1.23 then find the average illumination produced on the floor.

(b) State and explain any six factors considered while designing the illumination for the interior location of a commercial unit.

(c) Explain the design consideration factor of street lighting. State the types of lamps used in street lighting. Draw the connection diagram for the street light pole.

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

(a) State concept of flood lighting. Explain any four specific requirements of flood lighting and state the outdoor locations where flood lighting is used.

(b) State the different methods of light control and explain single lamp control by two-point method with a neat circuit.

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(c) Explain the design considerations while designing an illumination scheme for an office building. State the recommended illumination level for the following areas of an office :

(i) Entrance Hall

(ii) Conference rooms

(iii) Drawing offices

(iv) Corridors and lift
