



Name :

Roll No. :

Invigilator's Signature :

CS/BOPTM/SEM-3/BO-302/2012-13
2012
LIGHTING & THE EYE

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following :

$10 \times 1 = 10$

- i) Human eye is most sensitive to wavelength of
 - a) red region
 - b) yellow-green region
 - c) ultraviolet region
 - d) equally to all wavelengths.
- ii) To describe the colour of daylight
 - a) CT is used
 - b) CCT is used
 - c) CFI is used
 - d) daylight factor is used.

3132

[Turn over



GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. a) What is CIE ? 1
- b) What do you mean by CIE standard observer ? 1
- c) Draw the visibility curve of a standard observer for photopic and scotopic vision. 3
3. Draw the photopic and scotopic curve of human eye. Compare between photopic and scotopic vision.
4. Define luminous intensity and its unit.
5. Write one application of each of the following lamps :
CFL, Mercury lamp, Halogen lamp, Incandescent lamp.

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

6. a) Discuss on Lux meter sensor.
- b) What is meant by the 'linearity of response' of this sensor ?
- c) Why is colour correction and cosine correction necessary for a Lux meter sensor ?
- d) Briefly discuss on Isolux diagram.
- e) What do you mean by Purkinje effect ?

$3 + 2 + 4 + 3 + 3$



7. Describe different types of glare and their significance in everyday life. How they may be reduced in practice ? 7 + 8
8. a) Write one use of each of the following :
Sodium lamp, Mercury lamp, Halogen lamp, Incandescent lamp.
- b) What is daylight ? What are its components ?
- c) Write a short description on Eye Protectors.
- (4 × 1) + (2 + 2) + 7
9. a) What are the lamp selection parameters ?
- b) Discuss the necessity of a SPD curve.
- c) What is colour rendering index (CRI) ?
- d) What do you mean by correlated colour temperature (CCT) ?
- e) For a lamp with CRI 80% and CCT 6500 K what is the statement ? 3 + 2 + 3 + 3 + 4
10. With labeled diagram write the construction and working of LB photometer. 4 + 6 + 5
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