



Name :
Roll No. :
Invigilator's Signature :

CS/B.OPTM/SEM-3/BO-302/2011-12

2011

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 any *ten* of the following :

10 × 1 = 10

- i) Incandescent lamp has
 - a) asymmetrical polar curve
 - b) symmetrical polar curve
 - c) both (a) and (b)
 - d) none of these.
- ii) Lux meter comprises
 - a) photodiode
 - b) photomultiplier tube
 - c) photovoltaic cell
 - d) either (a) or (b).
- iii) Light meter measures
 - a) intensity of illumination
 - b) luminance
 - c) luminous intensity
 - d) luminous flux.



- iv) The unit of solid angle is
- a) solid angle b) radian
c) steradian d) candela.
- v) Which photometer is used for comparing the lights of different colours ?
- a) Bunsen photometer
b) Grease spot photometer
c) Lummer Brodhum photometer
d) Guilds Flicker photometer.
- vi) One lumen per square metre is the same as
- a) one lux b) one candela
c) one foot candle d) one lumen metre.
- vii) Which of the following lamps gives nearly monochromatic light ?
- a) Sodium vapour lamp b) GLS lamp
c) Tubelight d) Mercury vapour lamp.
- viii) Lumen/watt is the unit of
- a) Light flux b) Luminous intensity
c) Brightness d) Luminous efficiency.
- ix) A mercury vapour lamp gives
- a) pink light b) yellow light
c) greenish blue light d) white light.
- x) In gas filled filament bulbs, the gas used is
- a) oxygen b) helium
c) nitrogen d) ozone.

CS/B.OPTM/SEM-3/BO-302/2011-12



8. Discuss luminaries and their design. Explain the concept of "lighting system management" and your reasons for choice of lighting equipment.

9. a) What is a Lambertian surface ?

b) For a flat perfect diffuser derive the following relations :

i) $\phi = \pi \times I N$

ii) $M = \pi \times L$

iii) $L = \frac{P \times E}{\pi}$

where these symbols have their own meaning.

c) What is the meaning of I.P. Code ? Explain why it is important for indoor luminaire selection. 1 + 10 + 4

=====