



BRAINWARE UNIVERSITY

Term End Examination 2022
Programme – Dip.EE-2019
Course Name – Illumination Engineering
Course Code - DEE507A
(Semester V)

LIBRARY
Brainware University
Barasat, Kolkata -700125

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Identify radiant efficiency of the luminous source depends on
a) shape of the source
b) temperature of the source
c) wavelength of light rays
d) all of the above.
- (ii) select the light waves travel with a velocity of
a) 3×10^{10} cm/s
b) 3×10^{12} cm/s
c) 3×10^{15} cm/s
d) 3×10^{18} cm/s
- (iii) Optical fibers for communication use are mostly fabricated from _____
a) Plastic
b) Silica or multicomponent glass
c) Ceramics
d) Copper
- (iv) Select stroboscopic effect due to use of discharge lamps in workshops results in moving machinery appearing
a) stationary
b) stationary running slow
c) stationary running reverse
d) all correct
- (v) Select Co-efficient of utilisation depends upon
a) colour of walls
b) colour of ceiling
c) size of room
d) all correct
- (vi) The main disadvantages of fluorescent tube's in comparison to filament lamp is
a) High cost
b) Noise in choke
c) Stroboscopic effect
d) All of the above.
- (vii) Report which of the following is present inside the fluorescent tube?
a) mercury vapor
b) argon and neon
c) helium
d) hydrogen
- (viii) Select that the one lumen per square meter is the same as
a) One lux
b) One candela
c) One foot.candle
d) One lumen meter.
- (ix) Justify when an electric bulb is broken it produces bang because
a) vaccum inside the bulb
b) Pressure of air in the bulb
c) Pressure inside is equal to that outside
d) none

- (x) Glow lamps
 a) have cold cathode
 b) have hot cathode
 c) cannot withstand shocks
 d) consume high power.
- (xi) The lens of the eye to focuses an image on the
 a) corona
 b) membrane
 c) calorie
 d) retina.
- (xii) Tell Coating of fluorescent lamps
 a) converts ultra-violet, radiations into visible light.
 b) converts visible light into ultra-violet radiations
 c) reduces glare
 d) none of the above.
- (xiii) Select that the capacitor is used in auto transformer circuit of a sodium vapour lamp in order to
 a) Regulate discharge voltage
 b) Improve the circuit power factor
 c) Control lamp illumination level
 d) Protect the lamp against overvoltage
- (xiv) In lighting design what is the measure of colour temperature ?
 a) Kelvin
 b) Watts
 c) Illumination
 d) Voltage
- (xv) What type of lightning is intended to highlight fixed in a wall?
 a) Task lighting
 b) General lighting
 c) Accent lighting
 d) Down lighting

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Identify the following : i) Glare, ii) MHCP, (3)
3. A room with an area of 6×9 m is illustrated by ten 80-W lamps. The luminous efficiency of the lamp is 80 lumens/W and the coefficient of utilization is 0.65. Calculate the average illumination. (3)
4. The flux emitted by 100-W lamp is 1,400 lumens placed in a frosted globe of 40 cm diameter and gives uniform brightness of 250 milli-lumens/m² in all directions. Solve the candle power of the globe and the percentage of light absorbed by the globe (3)
5. A surface inclined at an angle 40° to the rays is kept 6 m away from 150 candle power lamp. Find the average intensity of illumination on the surface. (3)
6. Prepare a short note on colorimeter. (3)

OR

Prepare short notes on Scotopic . (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Define Maintenance factor and depreciation factor (5)
8. A lamp having a candle power of 300 in all directions is provided with a reflector that directs 70% of total light uniformly on a circular area 40-m diameter. The lamp is hung at 15 m above the area. 1. Estimate the illumination and illumination at the center (5)
9. Illustrate about the CIE? explain briefly. (5)
10. Write the working of Luxmeter. (5)
11. Illustrate the procedure of measuring candle power with photometer. (5)
12. Select the advantage of led lamp? (5)

OR

Select the use of photo cell in lighting control. (5)