15981

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – Dip.EE-2022/Dip.EE-2023
Course Name – Illumination Engineering
Course Code - DEEPE503A
(Semester V)

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) Indicate heat from the filament of a lamp is transmitted to the surrounding.
- a) Conduction
- b) Convection
- c) Radiation
- d) No heat is transfered

(ii) Select when a fluorescent lamp is to be operated on DC, which of the following additional devices must be incorporated in the circuit
- a) Resistance
- b) capacitor
- c) inductor
- d) none

(iii) Predict the cold cathode lamp.
- a) Fluorescent lamp
- b) Neon lamp
- c) Mercury vapour lamp
- d) Sodium vapour lamp

(iv) Determine the primary function of capacitor across the supply to the fluorescent tube
- a) Stabilize the arc
- b) Reduce the starting current
- c) Improve the supply power factor
- d) Reduce the noise

(v) Identify the function of a reflector is to
- a) Protect the lamp
- b) Provide better illumination
- c) Avoid glare
- d) All of the above

(vi) Predict filament lamp at starting will take current
- a) Less than its full running current
- b) Equal to its full running current
- c) More than its full running current
- d) None of these

(vii) Determine in sodium vapour lamp the function of the leak transformer is
- a) To stabilize the arc
- b) To reduce the supply voltage
- c) Both (a) and (b)
- d) None of the above

(viii) Explain the factors on which of the following factors does the depreciation or maintenance factor depend
- a) Lamp cleaning schedule
- b) Ageing of the lamp
- c) Type of work carried out at the premises
- d) All of the above factors

(ix) Identify the type of light bulb is known for being highly energy-efficient and long-lasting

a) Incandescent
b) Halogen
c) Compact fluorescent (CFL)
d) Light-emitting diode (LED)

(x) Identify the purpose of a dimmer switch in interior lighting

a) To turn the lights on and off
b) To control the color temperature of the lights
c) To adjust the brightness of the lights
d) To change the direction of the light beams

(xi) State the primary purpose of exterior lighting.

a) Aesthetic enhancement
b) Energy conservation
c) Safety and security
d) Mood setting

(xii) Identify the outdoor lighting technology that is known for being energy-efficient and long-lasting.

a) Incandescent
b) Halogen
c) Compact fluorescent (CFL)
d) Light-emitting diode (LED)

(xiii) Identify the lamp has the best Colour Rendering Index (CRI).

a) LED
b) Fluorescent
c) Incandescent
d) High pressure sodium vapour

(xiv) Determine the ratio of illuminance at a point 5m just below a lamp emitting 100 candelas and at a point 5m away from the first point on the same horizontal plane.

a) 1:2
b) $2\sqrt{2} : 1$
c) $1: 2\sqrt{2}$
d) 2:1

(xv) Identify the lamps can be directly connected to a solar cell,

a) Incandescent
b) Metal Halide
c) Compact Fluorescent
d) LED

Group-B

(Short Answer Type Questions) 3 x 5=15

2. State the uses of polar curves. (3)
3. Define the following terms: i) Glare, ii) UF, iii)MF (3)
4. Discuss in what ways does "landscape lighting" differ from general exterior lighting, and recognize its common objectives. (3)
5. Explain the primary function of ambient lighting in interior design. (3)
6. Explain the operation of the following with circuit diagram : Sodium Vapor Lamp (3)

OR

Establish a relation between plain angle and solid angle. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Explain the operation of the following with circuit diagram : Mercury Vapor Lamp (5)
8. Explain in brief about Flood lighting. (5)
9. Discuss the use of warm and cool color temperatures, as well as the play of light and shadow in creating an inviting and memorable ambiance. (5)
10. Compare different lighting scheme in brief. (5)
11. State and explain the laws of illumination. (5)
12. Explain the lightning design of a park for both the physically fit and unfit person. (5)

OR

Explain the advantages of using solar-powered lighting fixtures for exterior applications. (5)

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