

**BITT POLYTECHNIC Ranchi-835217**  
**Department of Electrical Engineering**

**Sub: - ILLUMINATION ENGINEERING QUESTIONS**

**Sem- 5<sup>th</sup> (EE)**

**A. Objectives Questions.**

1. Candela is the unit of which?
  - a) Wavelength.
  - b) Luminous intensity.
  - c) Luminous flux.
  - d) Frequency.
  
2. Solid angle is expressed in terms of
  - a) radians / meter.
  - b) radians.
  - c) steradians.
  - d) degree.
  
3. Lightwave travel with a velocity of
  - a)  $3 \times 10^{10}$  cm/s
  - b)  $3 \times 10^{12}$  cm/s
  - c)  $3 \times 10^{15}$  cm/s
  - d)  $3 \times 10^{18}$  cm/s
  
4. Carbon arc lamps are commonly used in
  - a) Domestic lighting
  - b) Street lighting
  - c) Cinema Projector
  - d) Photography
  
5. The unit of luminous flux is
  - a) Steradian
  - b) Candela
  - c) Lumen
  - d) Lux
  
6. Illumination level required for precision work is around
  - a)  $50 \text{ lm/m}^2$
  - b)  $100 \text{ lm/m}^2$
  - c)  $200 \text{ lm/m}^2$
  - d)  $500 \text{ lm/m}^2$

7. Which of the following will needs the highest level of illumination?
- Proofreading
  - Bed Room
  - Hospital wards
  - Railway platforms
8. The illumination is directly proportional to the cosine of the angle made by the normal to the illuminated surface with the direction of the incident flux. Above statement is associated with
- Planck's law
  - Macbeth's law of illumination
  - Bunsen's law of illumination
  - Lambert's cosine law
9. Which of the following will need lowest level of illumination ?
- Displays
  - Fine engraving
  - Railway platform
  - Auditoriums.
10. The illumination level in houses is in the range
- 10-20 lumen/m<sup>2</sup>
  - 30 - 50 lumen/m<sup>2</sup>
  - 40-75 lumen/m<sup>2</sup>
  - 100-140 lumen/m<sup>2</sup>.

## **B. Short Answer Types Questions**

- What is street lighting?
- What is aquarium lighting?
- Write essential conditions require to design a medium size hospital.
- What are illumination terminologies? Explain any two.
- What is candela power, explain briefly.
- What is luminous intensity?
- What are the factors that must be taken into consideration while illuminating a classroom?
- What are the different schemes of illumination?

9. What is factory lighting? Explain briefly.
10. Write different types of switches used in illumination.

### **C. Long Answer Types Questions**

11. Find the illumination if the area of the surface is  $160 \text{ m}^2$  and luminous flux of 1800 lumens.
12. Explain laws of inverse square law with suitable diagrams.
13. Explain law of cosine or cosine law of illumination with suitable diagrams.
14. Explain the principle and working of incandescent lamps.
15. Explain principle, working and construction of arc lamps.

### **Solutions:**

#### **A. Objectives Questions.**

1. B
2. C
3. A
4. C
5. C
6. D
7. A
8. D
9. C
10. D