
LED and Laser Advantages MCQ Questions



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MCQ Questions

1. Q Which of the following is an advantage of lasers over LEDs?

- (a) Simpler fabrication process
- (b) Lower cost
- (c) Higher radiance
- (d) Linear light output against current characteristic

1. A (c)

2. Q What is one advantage of LEDs over lasers?

- (a) Higher radiance and optical output power
- (b) Narrow linewidth for minimizing material dispersion
- (c) Simpler drive circuitry and lower drive currents
- (d) Modulation capabilities in the gigahertz range

2. A (c)

3. Q Which characteristic allows lasers to efficiently couple their output power into optical fibers?

- (a) Simpler fabrication process
- (b) Lower cost
- (c) Good spatial coherence
- (d) Immunity to gradual degradation

3. A (c)

4. Q LEDs are more suitable for applications requiring:

- (a) High radiance and optical output power
- (b) Narrow linewidth for minimizing material dispersion
- (c) Modulation capabilities in the gigahertz range
- (d) Linear light output against current characteristic

4. A (d)

5. Q Which of the following is an advantage of lasers for high-capacity systems?

- (a) Simpler fabrication process
- (b) Lower cost
- (c) Relative temporal coherence for heterodyne detection
- (d) Immunity to self-pulsation and modal noise problems

5. A (c)

6. Q LEDs are known for their:

- (a) High radiance and optical output power
- (b) Narrow linewidth on the order of 1 nm or less
- (c) Simpler drive circuitry and reduced temperature dependence
- (d) Good spatial coherence for efficient coupling into optical fibers

6. A (c)

7. Q Which type of device has a linear light output against current characteristic?

- ☐ (a) Lasers
- ☐ (b) LEDs
- ☐ (c) Both lasers and LEDs
- ☐ (d) Neither lasers nor LEDs

7. A (b)

8. Q Which device is generally more cost-effective to produce?

- ☐ (a) Lasers
- ☐ (b) LEDs
- ☐ (c) Both lasers and LEDs
- ☐ (d) It depends on the specific application

8. A (b)

9. Q Which device is generally less sensitive to gradual degradation?

- ☐ (a) Lasers
- ☐ (b) LEDs
- ☐ (c) Both lasers and LEDs
- ☐ (d) It depends on the specific application

9. A (b)

10. Q Which characteristic makes lasers more suitable for coherent detection in high-capacity systems?

- (a) Simpler fabrication process
- (b) Lower cost
- (c) Relative temporal coherence
- (d) Simpler drive circuitry

10. A (c)

11. Q The simpler construction of LEDs contributes to:

- (a) Higher radiance and optical output power
- (b) Reduced cost
- (c) Immunity to self-pulsation and modal noise problems
- (d) Linear light output against current characteristic

11. A (b)

12. Q What advantage do LEDs have in terms of temperature dependence?

- (a) Their light output against current characteristic is less affected by temperature
- (b) Raising the temperature increases the threshold current, halting operation
- (c) They exhibit catastrophic degradation at high temperatures
- (d) They require temperature compensation circuits for proper operation

12. A (a)

13. Q the LED is a threshold device and therefore raising the temperature increases the threshold current above the operating point and hence halt operation.

- ☐ (a) True
- ☐ (b) False

13. A (b)

14. Q Which device exhibits a narrower linewidth on the order of 1 nm or less?

- ☐ (a) Lasers
- ☐ (b) LEDs
- ☐ (c) Both lasers and LEDs
- ☐ (d) Neither lasers nor LEDs

14. A (a)

15. Q Which device requires lower drive currents and less complex drive circuitry?

- ☐ (a) Lasers
- ☐ (b) LEDs
- ☐ (c) Both lasers and LEDs
- ☐ (d) It depends on the specific application

15. A (b)