Code No: A109100104 **Set No. 1**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, February – 2012

ENGINEERING PHYSICS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I. Choose the correct alternative:

1. The Bose-Einsetin statistics deals with particles having [ ]
   (A) integral spin (B) half integral spin (C) no spin (D) any value of spin

2. In the spectrum of black body radiation, Wein's law is applicable to [ ]
   (A) longer wavelength region (B) shorter wavelength region
   (C) any wavelength region (D) none of wavelengths

3. Matter waves are called [ ]
   (A) electromagnetic waves (B) de Broglie waves
   (C) ultrasonic waves (D) Planck waves

4. The wave function is [ ]
   (A) the quantity associates with all waves
   (B) the probability amplitude of finding the particle in space
   (C) a mathematical function with four variables
   (D) a real function

5. When the scattering power of the potential barrier is zero, the electron is [ ]
   (A) completely bound (B) partly bound and partly free
   (C) lost due to recombination (D) completely free

6. Einstein relation connect the diffusion coefficient and [ ]
   (A) drift current (B) drift velocity of charge carriers
   (C) diffusion current (D) mobility of charge carriers

7. If the Hall coefficient is negative then the semiconductor is [ ]
   (A) n-type (B) p-type (C) intrinsic (D) extrinsic

8. Application of forward bias to a junction diode reduces [ ]
   (A) the minority carrier current to zero (B) the majority carrier current to zero
   (C) the potential barrier (D) the current to zero

9. The color of light emitted from an LED manufactured from Ga As P material, is [ ]
   (A) red (B) green (C) blue (D) white

10. For which wavelength region of black body radiation, Planck's law is applicable? [ ]
    (A) longer wavelength region (B) shorter wavelength region
    (C) any wavelength region (D) none of wavelengths

Cont....2

II Fill in the blanks

11. For a system of two particles with three possible states, the number of distinct states, is 3 according to _____ statistics.

12. In the Davisson and Germer experiment, when 54 volts is applied to electrons, the first order diffraction spectrum is observed at the scattering angle of _____.

13. Three-dimensional time-independent Schrodinger's wave equation is _____

14. The origin of energy bands in solids, is explained by _____ model

15. At 300 K, the intrinsic concentration in a semiconductor having energy gap nearly equal to 1 eV, is _____.

16. In a semiconductor, non-uniform concentration of charge carriers sets up _____.

17. The recombination produces a layer, at P-N unction, is called _____.

18. The rectification efficiency of a half-wave rectifier is _____%.

19. In an allowed band, the velocity of electron is zero at _____ of the band

20. An electron-hole _____ results in release of energy.

-oOo-

Code No: A109100104 **Set No. 2**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, February – 2012

ENGINEERING PHYSICS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I. Choose the correct alternative:

1. The wave function is [ ]
   (A) the quantity associates with all waves
   (B) the probability amplitude of finding the particle in space
   (C) a mathematical function with four variables
   (D) a real function

2. When the scattering power of the potential barrier is zero, the electron is [ ]
   (A) completely bound (B) partly bound and partly free
   (C) lost due to recombination (D) completely free

3. Einstein relation connect the diffusion coefficient and [ ]
   (A) drift current (B) drift velocity of charge carriers
   (C) diffusion current (D) mobility of charge carriers

4. If the Hall coefficient is negative then the semiconductor is [ ]
   (A) n-type (B) p-type (C) intrinsic (D) extrinsic

5. Application of forward bias to a junction diode reduces [ ]
   (A) the minority carrier current to zero (B) the majority carrier current to zero
   (C) the potential barrier (D) the current to zero

6. The color of light emitted from an LED manufactured from Ga As P material, is [ ]
   (A) red (B) green (C) blue (D) white

7. For which wavelength region of black body radiation, Planck's law is applicable? [ ]
   (A) longer wavelength region (B) shorter wavelength region
   (C) any wavelength region (D) none of wavelengths

8. The Bose-Einsetin statistics deals with particles having [ ]
   (A) integral spin (B) half integral spin (C) no spin (D) any value of spin

9. In the spectrum of black body radiation, Wein's law is applicable to [ ]
   (A) longer wavelength region (B) shorter wavelength region
   (C) any wavelength region (D) none of wavelengths

10. Matter waves are called [ ]
    (A) electromagnetic waves (B) de Broglie waves
    (C) ultrasonic waves (D) Planck waves

Cont....2

II Fill in the blanks

11. The origin of energy bands in solids, is explained by _____ model

12. At 300 K, the intrinsic concentration in a semiconductor having energy gap nearly equal to 1 eV, is _____.

13. In a semiconductor, non-uniform concentration of charge carriers sets up _____.

14. The recombination produces a layer, at P-N unction, is called _____.

15. The rectification efficiency of a half-wave rectifier is _____%.

16. In an allowed band, the velocity of electron is zero at _____ of the band

17. An electron-hole _____ results in release of energy.

18. For a system of two particles with three possible states, the number of distinct states, is 3 according to _____ statistics.

19. In the Davisson and Germer experiment, when 54 volts is applied to electrons, the first order diffraction spectrum is observed at the scattering angle of _____.

20. Three-dimensional time-independent Schrodinger's wave equation is _____

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Code No: A109100104 **Set No. 3**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, February – 2012

ENGINEERING PHYSICS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I. Choose the correct alternative:

1. Einstein relation connect the diffusion coefficient and [ ]
   (A) drift current (B) drift velocity of charge carriers
   (C) diffusion current (D) mobility of charge carriers

2. If the Hall coefficient is negative then the semiconductor is [ ]
   (A) n-type (B) p-type (C) intrinsic (D) extrinsic

3. Application of forward bias to a junction diode reduces [ ]
   (A) the minority carrier current to zero (B) the majority carrier current to zero
   (C) the potential barrier (D) the current to zero

4. The color of light emitted from an LED manufactured from Ga As P material, is [ ]
   (A) red (B) green (C) blue (D) white

5. For which wavelength region of black body radiation, Planck's law is applicable? [ ]
   (A) longer wavelength region (B) shorter wavelength region
   (C) any wavelength region (D) none of wavelengths

6. The Bose-Einsetin statistics deals with particles having [ ]
   (A) integral spin (B) half integral spin (C) no spin (D) any value of spin

7. In the spectrum of black body radiation, Wein's law is applicable to [ ]
   (A) longer wavelength region (B) shorter wavelength region
   (C) any wavelength region (D) none of wavelengths

8. Matter waves are called [ ]
   (A) electromagnetic waves (B) de Broglie waves
   (C) ultrasonic waves (D) Planck waves

9. The wave function is [ ]
   (A) the quantity associates with all waves
   (B) the probability amplitude of finding the particle in space
   (C) a mathematical function with four variables
   (D) a real function

10. When the scattering power of the potential barrier is zero, the electron is [ ]
    (A) completely bound (B) partly bound and partly free
    (C) lost due to recombination (D) completely free

Cont....2

II Fill in the blanks

11. In a semiconductor, non-uniform concentration of charge carriers sets up _____.

12. The recombination produces a layer, at P-N unction, is called _____.

13. The rectification efficiency of a half-wave rectifier is _____%.

14. In an allowed band, the velocity of electron is zero at _____ of the band

15. An electron-hole _____ results in release of energy.

16. For a system of two particles with three possible states, the number of distinct states, is 3 according to _____ statistics.

17. In the Davisson and Germer experiment, when 54 volts is applied to electrons, the first order diffraction spectrum is observed at the scattering angle of _____.

18. Three-dimensional time-independent Schrodinger's wave equation is _____

19. The origin of energy bands in solids, is explained by _____ model

20. At 300 K, the intrinsic concentration in a semiconductor having energy gap nearly equal to 1 eV, is _____.

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Code No: A109100104 **Set No. 4**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, February – 2012

ENGINEERING PHYSICS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I. Choose the correct alternative:

1. Application of forward bias to a junction diode reduces [ ]
   (A) the minority carrier current to zero (B) the majority carrier current to zero
   (C) the potential barrier (D) the current to zero

2. The color of light emitted from an LED manufactured from Ga As P material, is [ ]
   (A) red (B) green (C) blue (D) white

3. For which wavelength region of black body radiation, Planck's law is applicable? [ ]
   (A) longer wavelength region (B) shorter wavelength region
   (C) any wavelength region (D) none of wavelengths

4. The Bose-Einsetin statistics deals with particles having [ ]
   (A) integral spin (B) half integral spin (C) no spin (D) any value of spin

5. In the spectrum of black body radiation, Wein's law is applicable to [ ]
   (A) longer wavelength region (B) shorter wavelength region
   (C) any wavelength region (D) none of wavelengths

6. Matter waves are called [ ]
   (A) electromagnetic waves (B) de Broglie waves
   (C) ultrasonic waves (D) Planck waves

7. The wave function is [ ]
   (A) the quantity associates with all waves
   (B) the probability amplitude of finding the particle in space
   (C) a mathematical function with four variables
   (D) a real function

8. When the scattering power of the potential barrier is zero, the electron is [ ]
   (A) completely bound (B) partly bound and partly free
   (C) lost due to recombination (D) completely free

9. Einstein relation connect the diffusion coefficient and [ ]
   (A) drift current (B) drift velocity of charge carriers
   (C) diffusion current (D) mobility of charge carriers

10. If the Hall coefficient is negative then the semiconductor is [ ]
    (A) n-type (B) p-type (C) intrinsic (D) extrinsic

Cont....2

II Fill in the blanks

11. The rectification efficiency of a half-wave rectifier is _____%.

12. In an allowed band, the velocity of electron is zero at _____ of the band

13. An electron-hole _____ results in release of energy.

14. For a system of two particles with three possible states, the number of distinct states, is 3 according to _____ statistics.

15. In the Davisson and Germer experiment, when 54 volts is applied to electrons, the first order diffraction spectrum is observed at the scattering angle of _____.

16. Three-dimensional time-independent Schrodinger's wave equation is _____

17. The origin of energy bands in solids, is explained by _____ model

18. At 300 K, the intrinsic concentration in a semiconductor having energy gap nearly equal to 1 eV, is _____.

19. In a semiconductor, non-uniform concentration of charge carriers sets up _____.

20. The recombination produces a layer, at P-N unction, is called _____.

-oOo-