Paper Code No. M-25 **Question Booklet No.** 250104

ENTRANCE EXAMINATION – 2019

SET – D

ROLL NO. M 2 5 0 1 4 6 8

Signature of Invigilator

Time : 1 HOUR 45 MINUTES **Total Marks : 100**

Instructions to Candidates

1. Do not write your name or put any other mark of identification anywhere in the OMR Response Sheet. **IF ANY MARK OF IDENTIFICATIONS IS DISCOVERED ANYWHERE IN OMR RESPONSE SHEET, the OMR sheet will be cancelled, and will not be evaluated.**
2. **This Question Booklet contains the cover page and a total of 100 Multiple Choice Questions of 1 marks each**
3. Space for rough work has been provided at the beginning and end. Available space on each page may also be used for rough work.
4. There is negative marking in Multiple Choice Questions. For each wrong answer, 0.25 marks will be deducted.
5. USE/POSSESSION OF ELECTRONIC GADGETS LIKE MOBILE PHONE, iPhone, iPad, page ETC. is strictly **PROHIBITED.**
6. Candidate should check the serial order of questions at the beginning of the test. If any question is found missing in the serial order, it should be immediately brought to the notice of the Invigilator. No pages should be torn out from this question booklet.
7. Answers must be marked in the OMR response sheet which is provided separately. OMR Response sheet must be handed over to the invigilator before you leave the seat.
8. The OMR response sheet should not be folded or wrinkled. The folded or wrinkled OMR/Response Sheet will not be evaluated.
9. Write your Roll Number in the appropriate space (above) and on the OMR Response Sheet. Any other details, if asked for, should be written only in the space provided.
10. There are four options to each question marked A, B, C and D. Select one of the most appropriate options and fill up the corresponding oval/circle in the OMR Response Sheet provided to you. The correct procedure for filling up the OMR Response Sheet is mentioned below.
11. Use Black or Blue Ball Pen only for filling the ovals/circles in OMR Response Sheet. Darken the selected oval/circle completely. If the correct answer is 'B', the corresponding oval/circle should be completely filled and darkened as shown below.

CORRECT METHOD

Ⓐ ● Ⓒ Ⓓ

WRONG METHOD

Ⓐ ⊗ Ⓒ Ⓓ	Ⓐ ✓ Ⓒ Ⓓ	Ⓐ ◐ Ⓒ Ⓓ	Ⓐ ● Ⓒ Ⓓ	Ⓐ Ⓑ Ⓒ Ⓓ	Ⓐ ● Ⓒ ●

SET – D

1. In a series LCR circuit, instantaneous voltage across inductor and capacitor
A. 180° out of phase with each other
B. In-phase with each other
C. 90° out of phase with each other
D. 45° out of phase with each other

2. A hollow air cored inductor coil consists of 500 turns of copper wire which produces a magnetic flux of 10 m Wb when passing a DC current of 10 Amps. The self-inductance of the coil is
A. 500mH
B. 50mH
C. 5000mH
D. 0.5mH

3. For a non uniform polarization $\boldsymbol{P}$ in a medium, the sum of total bound charges is equal to
A. Zero
B. $P.n$
C. $\nabla.P$
D. None of the above

4. The tangential component of the electric field at the boundary between perfect conductor and a dielectric
A. Falls as a function of $1/r^2$
B. Is equal to zero
C. Depends on the charge distribution at the interface
D. None of the above

5. When a beam of light enters one medium from another, a quality that never changes is its
A. Direction
B. Frequency
C. Speed
D. Wavelength

6. In an electromagnetic wave the electric field is
A. Parallel to both magnetic field and the wave direction
B Perpendicular to both the magnetic field and the wave direction
C Parallel to the magnetic field and perpendicular to the wave direction
D. Perpendicular to the magnetic field and parallel to the wave direction

7. For an EM wave, Poynting Vector direction is
A. Along the wave propagation
B. Along Electric field
C. Along Magnetic field
D. None of the above

8. The speed of electromagnetic waves in a medium of electrical permittivity ϵ and magnetic permeability μ

A. $\sqrt{\mu\epsilon}$

B. $\frac{1}{\sqrt{\mu\epsilon}}$

C. $\frac{\sqrt{\epsilon}}{\sqrt{\mu}}$

D. $\frac{\sqrt{\mu}}{\sqrt{\epsilon}}$

9. For a lossless perfect conductor, intrinsic wave impedence is

A. $\frac{\sqrt{\mu}}{\sqrt{\epsilon}}$

B. $\sqrt{\mu}$

C. $\sqrt{\epsilon}$

D. $\sqrt{\mu\epsilon}$

10. The number of a crystallo graphically equivalent directions in the <100> family of a cubic crystal system is:

A. 4

B. 6

C. 8

D. 12

11. In a hydrogen atom, radius of the first Bohr orbit is 0.53 Å, radius of the second Bohr orbit will be

A. 0.53 Å

B. 1.06 Å

C. 1.59 Å

D. 2.12 Å

12. Show that the Madelung constant for an infinite array of two dimensional ionic charge distribution (i.e. two dimensional NaCl crystal) with equilibrium ion separation as R_e is:

A. 1.6135

B. 2.6135

C. 3.6135

D. 4.6135

13. The natural cut off frequency ω_m for one dimensional periodic lattice with force constant K and mass M is given by:

A. $4(K/M)^{1/2}$

B. $(2M/K)^{1/2}$

C. $2(K/M)^{1/2}$

D. $(2K/M)^{1/2}$

14. The interplanar distance in a crystal is 5 Å. The X-rays are allowed to incident at an angle of 9° and the first order diffraction is observed. The wavelength of the X-rays used is:

A. 1.56 Å

B. 2.56 Å

C. 3.56 Å

D. 4.56 Å

15. Einstein's theory concludes that at lower temperatures the specific heat of a solid

A. Drops linearly with increase of temperature

B. Drops linearly with decrease of temperature

C. Drops exponentially with decrease of temperature

D. Remains constant

16. A superconducting material, on being subjected to the critical field changes to

A. Critical conductivity

B. Superconductivity which is independent of temperature

C. Normal state

D. Remains uninfluenced

17. Magnetic susceptibility has the dimensions of

A. Wb/m2

B. Wb/m

C. Amp/m

D. Dimensionless

18. The energy needed to detach the fifth valence electron from the arsenic impurity atom surrounded by germanium atom is approximately:

A. 0.001 eV

B. 0.01 eV

C. 0.1 eV

D. 1.0 eV

19. If $\mathbf{u} = 2\mathbf{i} - 3\mathbf{j} + 6\mathbf{k}$ and $\mathbf{v} = a\mathbf{i} + \mathbf{j} + \mathbf{k}$ are perpendicular to each other then the value of a is

A. 0

B. −3/2

C. ½

D. 3

20. If $\mathbf{r} = x\,\mathbf{i} + y\mathbf{j}$ and $|\mathbf{r}| = r$ then

A. $\nabla\cdot\mathbf{r} = 0$ and $\nabla r = \mathbf{r}$

B. $\nabla\cdot\mathbf{r} = 2$ and $\nabla r = \mathbf{r}$

C. $\nabla\cdot\mathbf{r} = 2$ and $\nabla r = \mathbf{r}/r$

D. $\nabla\cdot\mathbf{r} = 0$ and $\nabla r = \mathbf{r}/r$

21. The integrating factor for the differential equation $dy/dx + 2xy = e^x$ is

A. $exp(x)$

B. $exp(x^2)$

C. $exp(2x^2)$

D. $exp(2x)$

22. Which of the following is an even function

A. $\cos x$

B. $\sin x$

C. x^2x

D. $\tan x$

23. Fourier transform of $exp(-x^2/2)$ is

A. $exp(s^2/2)$

B. $exp(s)$

C. $exp(-s^2/2)$

D. does not exist

24. The mechanical state of a classical system is specified by specifying

A. its generalized co-ordinates only.

B. its generalized velocities only.

C. its generalized co-ordinates and corresponding canonical momenta.

D. its generalized velocities and corresponding canonical momenta.

25. Two lumps of clay, each of rest mass m, collide head-on moving with velocity 3c/5 each. They stick together and come to rest. The mass M of the composite lump is equal to

A. 2m

B. 5m/4

C. 6m/5

D. 5m/2

26. Consider a particle of mass m following a trajectory given by $x = x_0 cos\omega_1 t$ and $y = y_0 sin \omega_2 t$, where x_0, y_0, ω_1, and ω_2 are constants of appropriate dimensions. The condition that the force on the particle is central is:

A. $\omega_1 \neq \omega_2$

B. $x_0 = y_0$

C. $\omega_1 = \omega_2$

D. $x_0 = y_0$ and $\omega_1 \neq \omega_2$

27. Suppose you could run at half the speed of light down the corridor of a train going three quarters the speed of light. Your velocity with respect to the ground would be

A. 5c/4

B. 4c/5

C. 10c/11

D. 9c/11

28. A muon is travelling through the laboratory at three-fifths the speed of light. It lives longer than at rest by a factor of:

A. 3/5

B. 5/3

C. 5/4

D. 4/5

29. A solid sphere rolls down two different inclined planes of the same height but different angles of inclination. In each case, the ball will reach the bottom

A. With the same speed

B. With different speed

C. With different speed but same time

D. With different speed and different time

30. Two bodies have their moments of inertia I and $2I$. respectively about their axis of rotation. If their kinetic energies of rotation are equal. Their angular momentum will be in the ratio of

A. 1 : 2
B. 2 : 1
C. 1
D. 1 : $\sqrt{2}$

31. The moment of inertia of a solid cylinder of mass M and radius R, about the axis of symmetry is

A. $2MR^2/5$
B. MR^2
C. $MR^2/2$
D. $MR^2/3$

32. For an Elastic collision, which of the following is true

A. Both momentum and kinetic energy is conserved
B. Only momentum is conserved
C. Only kinetic energy is conserved
D. Neither momentum nor kinetic energy is conserved

33. An object A of mass 10kg travelling at 2m/s collides elastically with an object B of mass 2kg travelling at 4m/s in the opposite direction. The final velocities of both objects will be

A. A = 0m/s , B = 6m/s
B. A = 4m/s , B = 2m/s
C. A = 2m/s , B = 4m/s
D. A = 6m/s , B = 0m/s

34. An observer A on spaceship moving with a speed of $0.5c$ m/s, measures the speed of light to be c m/s. What will be the speed of light measured by another observer B moving on a spaceship in opposite direction with a speed of $0.5c$ m/s. ($c = 3 \times 10^8$ m/s)

A. 0.5c
B. c
C. 2c
D. 1.5c

35. Velocity of geostationary satellite with respect to earth is

A. 5m/s
B. 0m/s
C. 10m/s
D. 20m/s

36. The escape velocity on earth is 11.2 km/s. What will be the escape velocity on a planet whose mass and radius is double as compared to earth

A. 22.4 km/s
B. 44.8 km/s
C. 11.2 km/s
D. 33.6km/s

37. The number of degrees of freedom for a rigid rotating body is

A. 3
B. 4
C. 5
D. 6

38. In a uniform circular motion

A. Velocity and acceleration both are constant
B. Acceleration and speed are constant but velocity changes
C. Acceleration and velocity both change
D. Acceleration and speed both are constant

39. The entropy of a perfect crystal at T= 0 K

A. Small but finite
B. large and close to infinity
C. zero
D. constant throughout.

40. If $T_1 > T_2$, for a perfect gas of n mole, the work done W by a system during adiabatic process is given by the following expressions. Choose the correct one

A. $W = n C_v (T_1 - T_2)$
B. $W = n C_v (T_2 - T_1)$
C. $W = n C_p (T_2 - T_1)$
D. $W = n C_p (T_1 - T_2)$

41. During phase change, the specific Gibb's function is

A. zero
B. infinity
C. constant
D. variable

42. The root mean square speed of gas molecules of mass m, at temperature T is given by (k is Boltzmann's constant)

A. $\sqrt{(3kT/m)}$
B. $\sqrt{(2kT/m)}$
C. $\sqrt{(3kT/8m)}$
D. $\sqrt{(273kT/m)}$

43. An ideal gas undergoes an isochoric process, choose the following cor rect answer

A. $C_v dT = dU$
B. $C_p - C_v = R$
C. $(\partial u/\partial V)_T = 0$
D. $(\partial Q/\partial T)_P = C_p$

44. An enclosure containing blackbody radiation at temperature T undergoes adiabatic process such that its temperature (T) is doubled, then the final volume changes to

A. 8 times its initial volume
B. 1/8 times its initial volume
C. 4 times its initial volume
D. 1/32 its initial volume.

45. The statement of the second law of thermodynamics can be stated mathematically for a heat engine as

A. Q=W
B. W > Q
C. Q > W
D. none of these

46. The change in entropy when mass m of water boils to vapour can be calculated by which of the following formula (C, T_w, T_v, L are specific heat capacity, temperature of water, temperature of vapour and latent heat respectively. V_v and V_w are the volume of vapour and water)

A. $dS = mL/T$
B. $dS = mC\ ln(T_v/T_w)$
C. $dS = mC\ ln(T_w/T_v)$
D. $dS = mC\ ln\ (V_v/V_w)$

47. A system containing a perfect gas is slowly changed from initial state to final state. During this process no work is done by or on the gas. What kind of process it must be?

A. isobaric
B. isochoric
C. adiabatic
D. isothermal

48. The grand partition function is a function of the following thermodynamic quantities

A. T,V,N
B. S,V,N
C. $T,\ V,\ \mu$
D. S,P,N

49. The combined first and second laws of thermodynamics can be written as

A. $T\,dS = dU + PdV$
B. $dQ = TdS + PdV$
C. $dU = TdS + dQ$
D. $dU = TdS + PdV$

50. In a canonical ensemble

A. the energy and temperature are constants
B. the density and temperature are constants
C. the energy and entropy are constants
D. the entropy and temperature are constants

51. Which of the following statements is true?

A. Fermions are distinguishable but bosons are not
B. Bosons are distinguishable but fermions are not
C. Both fermions and bosons are distinguishable
D. Both fermions and bosons are indistinguishable

52. According to Maxwell's distribution of velocities of molecules, the most probable velocity is

A. Greater than the mean velocity
B. Equal to the mean velocity
C. Equal to root mean square velocity
D. Less than the root mean square velocity

53. In a grand canonical ensemble, a system ***A*** of fixed volume is in contact with a large reservoir ***B***, then

A. ***A*** can exchange only energy with ***B***
B. ***A*** can exchange only particles with ***B***
C. ***A*** can exchange both energy and particles with ***B***
D. ***A*** can exchange neither energy nor particles with ***B***

54. A particle with energy E is incident on a potential given by $V(x) = 0$ for $x<0$ and $V(x) = V_0$ for $x \geq 0$, the wave function of the particle for $E < V_0$ in the region $x>0$ (in terms of positive constants A, B and k) is

A. $Ae^{kx} + Be^{-kx}$
B. $Ae^{ikx} + Be^{-ikx}$
C. Ae^{-kx}
D. Ae^{kx}

55. A photon of wavelength λ is incident on a free electron at rest and is scattered in the backward direction. The functional shift in its wavelength in terms of the Compton wavelength λ_c of the electron is,

$\lambda_c/(2\lambda)$
$2\lambda_c/(3\lambda)$
$3\lambda_c/(2\lambda)$
$2\lambda_c/\lambda$

56. A nucleus has a size of 10^{-15} m. Consider an electron bound within a nucleus. The estimated energy of this electron is of the order of

A. 1 MeV
B. 10^2 MeV
C. 10^4 MeV
D. 10^6 MeV

57. For a wave in a medium the angular frequency ω and the wave vector k are related by $\omega^2 = \omega_0^2 + c^2 k^2$, where ω_0 and c are constants. The product of phase velocity and group velocity is

A. $0.25\ c^2$
B. c^2
C. $0.5\ c^2$
D. $0.4c^2$

58. The wave function of a quantum mechanical particle is given by $\psi = (3/5)\ \phi_1(x) + (4/5)\ \phi_2(x)$, where $\phi_1(x)$ and $\phi_2(x)$ are eigen functions with corresponding energy eigenvalues $-1eV$ and $-2eV$, respectively.
The energy of the particle in the state ψ is

A. (- 41/25) eV
B. (-11/5) eV
C. (36/25) eV
D. (- 7/5) eV

59. The wave function of a state of the Hydrogen atom is given by $\psi = 1/4[\psi_{200} + 2\psi_{211} + 3\psi_{210} + \sqrt{2}\ \psi_{21-1}]$, where ψ_{nlm} is the normalisedeigen function of the state with quantum number n,l,m in the usual notation. The expectation value of L_z in the state ψ is

A. $15\hbar/6$

B. $11\hbar/6$

C. $\hbar/8$

D. $3\hbar/8$

60. The commutator $[x^2, p^2]$ is

A. $2i\hbar xp$

B. $2i\hbar(xp+px)$

C. $2i\hbar px$

D. $2i\hbar(xp-px)$

61. A particle of mass m is confined in a two-dimensional infinite square well potential of side a . The eigen-energy of the particle in a given state is $25\pi^2\hbar^2/ma^2$. The state is

A. 4 -fold degenerate

B. 3 -fold degenerate

C. 2 -fold degenerate

D. Non-degenerate

62. The even and odd parity states of the wave function of Hydrogen atom depend upon the even and odd values respectively of the quantum number

A. l (Orbital quantum number)

B. m (Magnetic quantum number)

C. n (Principal quantum number)

D. n_r (Radial quantum number)

63. Operators in quantum mechanics

are used to represent physical observables in classical physics

are used to translate the equations of classical physics into equations of quantum physics

corresponding to canonically conjugate variables commute.

are nonlinear, hermitian corresponding to classical dynamical variables

64. Parallel light of wavelength 500 nm falls normally on two identical slits separated by 0.5 mm. The width of interference fringes seen on a screen 1 m away is

A. 1 mm

B. 0.1 mm

C. 0.25 mm

D. 2.5 mm

65. Interference fringes are observed on a screen with a double slit arrangement. If the upper slit alone is subsequently covered with a thin transparent sheet of plastic, the fringe pattern will

A. get displaced upward with no change in fringe width

B. get displaced downward with no change in fringe width

C. remain unchanged

D. be replaced by uniform illumination

66. Interference fringes are formed using 2 coherent sources with individual intensities $I_0$and $4I_0$. The intensity of the interference maxima seen on screen is
A. 5 I_0
B. $9I_0$
C. 4 I_0
D. 15 I_0

67. Interference fringes are observed in free space with a double slit arrangement. If the same setup is completely immersed in a medium of refractive index n (>1) , the fringe pattern will
A. exhibit an increase in fringe width
B. exhibit a decrease in fringe width
C. remain unchanged
D. be replaced by uniform illumination

68. To focus starlight, reflecting telescopes use
A. Plane mirrors
B. Parabolic mirrors
C. Spherical mirrors
D. Ellipsoidal mirrors

69. Unpolarised light of intensity I0is made to pass through 2 polarisers with an angle 300 between their pass axes. The intensity at the output will be
A. $I_0/8$
B. $3I_0/8$
C. $I_0/4$
D. $3I_0/4$

70. The vibrational spectra of diatomic molecules consists of:
A. A set of discrete, equally spaced spectral lines
B. A broad continuous spectrum
C. A set of discrete, unequally spaced spectral lines
D. A set of discrete lines, followed by a continuum

71. The deviation produced by a plane dispersion grating for different wavelengths within a certain spectral order n (>1)
A. increases with wavelength
B. decreases with wavelength
C. is independent of wavelength
D. changes randomly with wavelength

72. Light from a helium-neon laser is incident on a single slit of width 0.005 mm. The intensity on screen will consist of
A. a wide central maximum with intensity gradually decreasing to zero
B. a wide central maximum followed by equally spaced minima and maxima of decreasing intensity
C. a wide central maximum followed by unequally spaced minima and maxima of decreasing intensity
D. a central maximum of width 0.01 mm with intensity decreasing sharply to zero

73. Plane polarized light is incident normally on a quarter wave plate with the electric field vector parallel to the optic axis. The light at the output will be

A. Circularly polarized
B. Elliptically polarized
C. Plane polarized
D. Unpolarized

74. If the life time of an excited atomic state is τ, then the natural linewidth ($\Delta\omega$) of the emission spectrum will be

A. $1/\tau^2$
B. τ
C. $1/\tau$
D. none of the above

75. An atomic transition from **1s** to **2p** state, in the presence of magnetic field will split into

A. 1
B. 3
C. 5
D. 7

76. $^2P_{3/2}$ represent an atom in a particular state. The value of the total Spin angular momentum S for this state is

A. 2
B. 3/2
C. 1/2
D. 7/2

77. A hydrogen atom is known to be in a state characteried by the quantum numbers **n** = **3** and ***l*** = **2**, than the allowed values of total angular momentum ***j***

A. 3/2 , 1/2
B. 3/2 , 1/2, -1/2,-3/2
C. 5/2 , 3/2
D. 5/2 , 1/2

78. In a hydrogen atom, if energy of an electron in ground state is 13.6 eV, then that in the second excited state is

A. 1.51 eV
B. 3.4 eV
C. 6.04 eV
D. 13.6 eV

79. The orbital angular momentum quantum number of an electron in the ***d*** orbital is

A. 2
B. 1/2
C. 1
D. 3/2

80. For a rigid diatomic molecule, the selection rules for rotational transitions are

A. $\Delta J = \pm 1$, $\Delta M_J = \pm 1/2$
B. $\Delta J = \pm 1/2$, $\Delta M_J = \pm 1/2$
C. $\Delta J = \pm 1/2$, $\Delta M_J = 0$
D. $\Delta J = \pm 1$, $\Delta M_J = \pm 0$

81. For a rotation absorption spectrum, the energy difference for transition from J to J+1 will be

A. A constant for all values of J
B. Directly proportional to J
C. Directly proportional to J^2
D. Inversely proportional to J

82. Frank-Hertz experiment was the first measurement to show

A. Wave nature of electron
B. Wave-particle duality
C. Bohr model of an atom
D. Rutherford model of an atom

83. The lifetime for the 2p – 1s transition in hydrogen atom is 1.6×10^{-9} s. The natural linewidth for the radiation emitted during the transition is approximately

A. 100 kHz
B. 100 MHz
C. 100 GHz
D. 100 THz

84. The **surface energy** term in the Weizsäcker's semi-empirical formula for binding energy has (A is the mass number)

A. A dependence
B. A^{-1} dependence
C. $A^{2/3}$ dependence
D. $A^{-3/4}$ dependence

85. Which of the the following is NOT a correct transformation under parity

A. Vectors $\mathbf{V} \rightarrow -\mathbf{V}$
B. Pseudo-vectors $\mathbf{V} \rightarrow -\mathbf{V}$
C. Scalars S → S
D. Pseudo-scalars $\mathbf{S} \rightarrow -\mathbf{S}$

86. In a decay process of X nuclei decaying to Y nuclei, the equation $N(t) = No\, e^{-\lambda t}$ at any time t, represents the number of

A. Active X nuclei
B. Decayed X nuclei
C. Active Y nuclei
D. Decayed Y nuclei

87. Which of the following does NOT belong to the lepton family?

A. Electron (e^-)
B. mu neutrino ($\nu\mu$)
C. Taon (τ^-)
D. Proton (p^+)

88. Which of the following is an example of a particle detector
A. Linac
B. Betatron
C. Cloud Chamber
D. Synchrotron

89. $W^{\pm}$ and Z bosons are mediators of
A. Strong Force
B. Weak Force
C. Electromagnetic Force
D. None of these

90. Rotational symmetry of a system leads to the conservation of
A. Energy
B. Charge
C. Angular Momentum
D. Linear Momentum

91. The Newton's Equations of motion $m\, d^2\mathbf{r}/dt^2 = \mathbf{F}$ is invariant under
A. Parity
B. Time reversal
C. Rotations
D. All of these

92. Ripple factor for half wave rectifier is
A. 1.21
B. 0.47
C. 0.87
D. 0.61

93. The majority carriers in the base of an NPN germanium transistor are
A. Impurity ions
B. Holes
C. Electrons
D. Electron-hole pairs

94. In the Common Emitter configuration, the relation between emitter current (I_e), base current (I_b) and collector current (I_c) is
A. $I_e = I_b + I_c$
B. $I_e = I_b - I_c$
C. $I_e = I_b$
D. $I_e = I_c$

95. The input impedence of an ideal OP-AMP is
A. Finite
B. Zero
C. Infinite
D. Unity

96. The knee voltage of a semiconductor diode is approximately equal to
A. Breakdown Voltage
B. Applied voltage
C. Barrier Potential
D. Forward Voltage

97. Thevenin's theorem is true for
A. Linear networks
B. Non-Linear networks
C. Both linear networks and nonlinear networks
D. Neither linear networks nor non-linear networks

98. Which of the following expressions is in the sum-of-products (SOP) form?
A. (A+B)(C+D)
B. $(A)B(CD)$
C. $AB(CD)$
D. $AB + CD$

99. In 2's complement representation the number 11100101 represents the decimal number
A. +37
B. -37
C. +27
D. -27

100. Convert binary 111111110010 to hexadecimal.
A. $EE2_{16}$
B. $FF2_{16}$
C. $2FE_{16}$
D. $FD2_{16}$