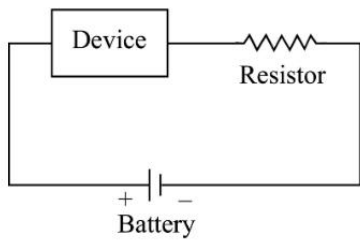


Q.1 A semiconducting device is connected as shown in the figure



A current is found to pass through the circuit. On reversing the polarity of the battery. The current in the circuit drops to almost zero. What is this device?

- 1. a P-type semiconductor
- 2. an N-type semiconductor
- 3. an intrinsic semiconductor
- 4. a p-n junction diode

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **6323866852**
Option 1 ID : **63238627405**
Option 2 ID : **63238627406**
Option 3 ID : **63238627407**
Option 4 ID : **63238627408**
Status : **Answered**
Chosen Option : **4**

Q.2 There is a solenoid of length 1 m has a radius of 1 cm and is made up of 1000 turns. It carries a current of 10 A. The magnitude of magnetic field inside the solenoid is

- 1. $8\pi \times 10^{-3}$ T
- 2. $40\pi \times 10^{-3}$ T
- 3. $4\pi \times 10^{-3}$ T
- 4. $0.4\pi \times 10^{-3}$ T

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **6323866827**
Option 1 ID : **63238627305**
Option 2 ID : **63238627306**
Option 3 ID : **63238627307**
Option 4 ID : **63238627308**
Status : **Answered**
Chosen Option : **1**

Q.3 What is the approximate wavelength of the radiation emitted when the electron in an hydrogen atom jumps from $n = \infty$ to $n = 3$?

- 1. $822 \text{ \AA}$
- 2. 822 nm
- 3. 8220 nm
- 4. 365 nm

Options

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**
Question ID : **6323866848**
Option 1 ID : **63238627389**
Option 2 ID : **63238627390**
Option 3 ID : **63238627391**
Option 4 ID : **63238627392**
Status : **Answered**
Chosen Option : **3**

Q.4 The magnetic flux passing perpendicular to the plane of coil is changing according to the equation $\Phi = 6t^2 + 7t + 1$, where ' Φ ' is in mWb and 't' in sec. The magnitude of induced emf at $t = 2 \text{ s}$ is

- 1. 31 mV
- 2. 38 mV
- 3. 39 mV
- 4. 32 mV

Options

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**
Question ID : **6323866828**
Option 1 ID : **63238627309**
Option 2 ID : **63238627310**
Option 3 ID : **63238627311**
Option 4 ID : **63238627312**
Status : **Answered**
Chosen Option : **1**

Q.5 Match List I with List II

LIST I (Quantity)		LIST II (Variation with distance 'r')	
A.	Electric field intensity (E) due to a single charge	I.	$\alpha \frac{1}{r}$
B.	Electric field intensity due to electric dipole	II.	$\alpha \frac{1}{r^4}$
C.	Electric potential (V) due to a single charge	III.	$\alpha \frac{1}{r^3}$
D.	Electric field intensity due to a quadrupole	IV.	$\alpha \frac{1}{r^2}$

Choose the correct answer from the options given below:

- 1. A-IV, B-III, C-II, D-I
- 2. A-I, B-II, C-III, D-IV
- 3. A-III, B-IV, C-II, D-I
- 4. A-IV, B-III, C-I, D-II

- Options
- 1. 1
 - 2. 2
 - 3. 3
 - 4. 4

Question Type : MCQ
Question ID : 6323866813
Option 1 ID : 63238627249
Option 2 ID : 63238627250
Option 3 ID : 63238627251
Option 4 ID : 63238627252
Status : Answered
Chosen Option : 4

Q.6

Which of the following gates can give an AND gate by its repetitive use?

1. Both NAND gate and NOR gate
2. NOT gate only
3. OR gate only
4. NAND gate only

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 6323866853

Option 1 ID : 63238627409

Option 2 ID : 63238627410

Option 3 ID : 63238627411

Option 4 ID : 63238627412

Status : Answered

Chosen Option : 1

Q.7

If potential difference V applied across a metallic wire is increased by V , how will the drift velocity of the electrons change?

1. becomes half
2. becomes twice
3. becomes four times
4. remains the same

Options 1. 1

2. 2
3. 3
4. 4

Question Type : MCQ

Question ID : 6323866858

Option 1 ID : 63238627429

Option 2 ID : 63238627430

Option 3 ID : 63238627431

Option 4 ID : 63238627432

Status : Answered

Chosen Option : 3

Q.8 The electron in a hydrogen atom rises from its $n = 1$ state to $n = 4$ state by absorbing energy. The energy of the electron in the $n = 1$ state is -13.6 eV . How much energy is absorbed by the electron in transition ?

1. -0.85 eV
2. 12.75 eV
3. -12.75 eV
4. 0.85 eV

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866857**

Option 1 ID : **63238627425**

Option 2 ID : **63238627426**

Option 3 ID : **63238627427**

Option 4 ID : **63238627428**

Status : **Answered**

Chosen Option : **2**

Q.9 Which of the following statements are correct?

- A. Two major types of resistors are wire bound resistors and carbon resistors.
- B. Mobility is the drift velocity per unit electric field.
- C. The internal resistance of dry cells is much lower than the common electrolytic cells.
- D. In electrolytic liquids, electrons carry the electric current.
- E. Potentiometer is unaffected by the internal resistance of the source.

Choose the correct answer from the options given below:

1. A, B and E Only
2. B, C, D and E Only
3. C, D and E Only
4. D and E Only

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866818**

Option 1 ID : **63238627269**

Option 2 ID : **63238627270**

Option 3 ID : **63238627271**

Option 4 ID : **63238627272**

Status : **Answered**

Chosen Option : **4**

Q.10 Which of the following statements are correct?

- A. Dispersion is the splitting of light into it's constituent colours.
- B. The unit for power of a lens is m^{-1} .
- C. Optical fibres consist of glass fibres coated with a thin layer of material of higher refractive index.
- D. Cassegrain telescope has the advantages of a large focal length in a short telescope.
- E. Glass is a dispersive medium.

Choose the correct answer from the options given below:

- 1. A, B, C and E Only
- 2. A, B, D and E Only
- 3. B, C, D and E Only
- 4. C, D and E Only

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

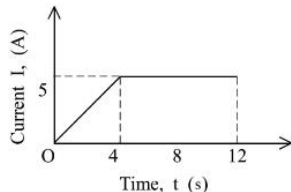
Question Type : **MCQ**

Question ID : **6323866837**
Option 1 ID : **63238627345**
Option 2 ID : **63238627346**
Option 3 ID : **63238627347**
Option 4 ID : **63238627348**

Status : **Answered**

Chosen Option : **1**

Q.11 Figure below shows a plot of current I through the cross-section of a wire over a time interval of 12s. How much charge flows through the wire during this time period?



- 1. 10 C
- 2. 50 C
- 3. 20 C
- 4. 25 C

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **6323866817**
Option 1 ID : **63238627265**
Option 2 ID : **63238627266**
Option 3 ID : **63238627267**
Option 4 ID : **63238627268**

Status : **Answered**

Chosen Option : **4**

Q.12 In Young's double slits experiment, the light has a frequency 12×10^{14} Hz and the distance between the centers of adjacent fringes is 0.8 mm. If the screen is 1.6 m away, what is the distance between the slits? (Take speed of light 3×10^8 m s⁻¹)

1. 5.00×10^{-4} m
2. 5.92×10^{-4} m
3. 2.00×10^{-4} m
4. 1.25×10^{-4} m

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866859**

Option 1 ID : **63238627433**

Option 2 ID : **63238627434**

Option 3 ID : **63238627435**

Option 4 ID : **63238627436**

Status : **Answered**

Chosen Option : **1**

Q.13 For which of the following, a capacitor acts as an infinite resistance component in the circuit?

1. Alternating current
2. Direct current
3. Alternating current as well as direct current
4. Neither alternating current nor direct current

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866833**

Option 1 ID : **63238627329**

Option 2 ID : **63238627330**

Option 3 ID : **63238627331**

Option 4 ID : **63238627332**

Status : **Answered**

Chosen Option : **3**

Q.14 In a feedback amplifier, if the feedback voltage is in opposite phase, the gain is less than 1. Then it will:

1. Never work as an Oscillator
2. Work as an Oscillator
3. Not work as an Oscillator
4. Work as a rectifier

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866850**

Option 1 ID : **63238627397**

Option 2 ID : **63238627398**

Option 3 ID : **63238627399**

Option 4 ID : **63238627400**

Status : **Answered**

Chosen Option : **2**

Q.15 Two coherent monochromatic light beams of intensities $16I$ and $4I$ are superposed. The maximum and minimum possible intensities in the resulting beam are-

1. $20I$ and I
2. $36I$ and $4I$
3. $20I$ and $12I$
4. $36I$ and I

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866836**

Option 1 ID : **63238627341**

Option 2 ID : **63238627342**

Option 3 ID : **63238627343**

Option 4 ID : **63238627344**

Status : **Answered**

Chosen Option : **1**

Q.16

The current and voltage in ac circuit are given by $I = 5 \sin \left(100t - \frac{\pi}{2} \right)$ A and $V = 200 \sin (100t)$ V. The power dissipated in the circuit is

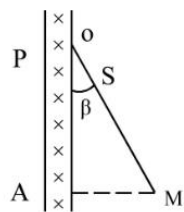
- 1. 20 W
- 2. 40 W
- 3. 0
- 4. 1000 V

- Options
- 1. 1
 - 2. 2
 - 3. 3
 - 4. 4

Question Type : MCQ
Question ID : 6323866830
Option 1 ID : 63238627317
Option 2 ID : 63238627318
Option 3 ID : 63238627319
Option 4 ID : 63238627320
Status : Answered
Chosen Option : 3

Q.17

A charged ball 'M' hangs from a silk thread 'S' which makes an angle β , with a large charged conducting sheet 'P' as shown. The surface charge density σ of the sheet is proportional to



- 1. $\tan B$
- 2. $\sin B$
- 3. $\cot B$
- 4. $\cos B$

- Options
- 1. 1
 - 2. 2
 - 3. 3
 - 4. 4

Question Type : MCQ
Question ID : 6323866815
Option 1 ID : 63238627257
Option 2 ID : 63238627258
Option 3 ID : 63238627259
Option 4 ID : 63238627260
Status : Answered
Chosen Option : 4

Q.18 Which of the following statements are correct?

- A. Moving charges produce a magnetic field in the surrounding space.
- B. An instrument called the current balance is used to measure mechanical force between two parallel conductors.
- C. The electron has an intrinsic magnetic moment, which is known as the orbital magnetic moment.
- D. Magnetic field of several sources is the vector addition of magnetic field of each individual source.
- E. The radius of the circular component of motion is called the radius of the helix.

Choose the correct answer from the options given below:

- 1. A and C Only
- 2. B, C and E Only
- 3. A, C, D and E Only
- 4. A, B, D and E Only

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **6323866823**

Option 1 ID : **63238627289**

Option 2 ID : **63238627290**

Option 3 ID : **63238627291**

Option 4 ID : **63238627292**

Status : **Answered**

Chosen Option : **2**

Q.19 X-rays of wavelength $\lambda = 1\text{\AA}$ have frequency

- 1. 3×10^8 Hz
- 2. 3×10^{18} Hz
- 3. 3×10^{10} Hz
- 4. 3×10^{15} Hz

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **6323866835**

Option 1 ID : **63238627337**

Option 2 ID : **63238627338**

Option 3 ID : **63238627339**

Option 4 ID : **63238627340**

Status : **Answered**

Chosen Option : **1**

Q.20

In a concave mirror, an object is placed at a distance x from the focus and the image is formed at a distance y from the focus. What is the focal length of the mirror?

1. $(xy)^{\frac{1}{2}}$

2. $\frac{(x+y)}{2}$

3. xy^{-1}

4. xy

Options

1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **6323866839**

Option 1 ID : **63238627353**

Option 2 ID : **63238627354**

Option 3 ID : **63238627355**

Option 4 ID : **63238627356**

Status : **Answered**

Chosen Option : **2**

Q.21 Which of the following is not the property of β^- ray?

1. The ionising power is less than that of α -particles.

2. The penetrating power is greater than that of α -particles.

3. It is made of positively charged particles.

4. It is deflected by an electric as well as by a magnetic field.

Options

1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **6323866847**

Option 1 ID : **63238627385**

Option 2 ID : **63238627386**

Option 3 ID : **63238627387**

Option 4 ID : **63238627388**

Status : **Answered**

Chosen Option : **4**

Q.22 A charge Q is divided into two parts, q and $(Q - q)$. The repulsion between them is maximum when $Q:q$ is

1. 2:1
2. 1:2
3. 4:1
4. 1:4

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866812**

Option 1 ID : **63238627245**

Option 2 ID : **63238627246**

Option 3 ID : **63238627247**

Option 4 ID : **63238627248**

Status : **Answered**

Chosen Option : **3**

Q.23

A metal plate is getting heated. It can be because of-

- A. An alternating current is passing through the plate.
- B. It is placed in a time varying magnetic field.
- C. A direct current is passing through the plate.
- D. It is placed in a space varying magnetic field, but does not vary with time.
- E. It is placed in a time constant magnetic field.

Choose the correct answer from the options given below:

1. A, B, C Only
2. C, D, E Only
3. A, D, E Only
4. B, C, D Only

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866829**

Option 1 ID : **63238627313**

Option 2 ID : **63238627314**

Option 3 ID : **63238627315**

Option 4 ID : **63238627316**

Status : **Answered**

Chosen Option : **2**

Q.24 As per Bohr's model the energy (in eV) required to remove electron from ground state of Li^{++} (doubly ionised lithium atom) is

- 1. 1.51
- 2. 13.6
- 3. 40.8
- 4. 122.4

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **6323866846**

Option 1 ID : **63238627381**

Option 2 ID : **63238627382**

Option 3 ID : **63238627383**

Option 4 ID : **63238627384**

Status : **Answered**

Chosen Option : **1**

Q.25 In a potentiometer arrangement, a cell of emf 1.5 V gives a balance point at 45.0 cm length of the wire. If the cell is replaced by another cell of emf 2.25 V. Where will the balance point shift to ?

- 1. 63.0 cm
- 2. 67.5 cm
- 3. 100.0 cm
- 4. 90.0 cm

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **6323866820**

Option 1 ID : **63238627277**

Option 2 ID : **63238627278**

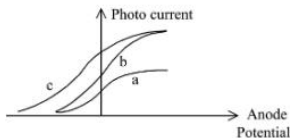
Option 3 ID : **63238627279**

Option 4 ID : **63238627280**

Status : **Answered**

Chosen Option : **4**

Q.26 The figure shows the variation of photo current with anode potential for a photo-sensitive surface for three different radiations. Let I_a , I_b and I_c be the intensities and γ_a , γ_b , and γ_c be the frequencies for the curves a, b and c respectively. Choose the correct statement.



- $\gamma_a = \gamma_b ; I_b = I_c$
- $\gamma_b = \gamma_c ; I_a = I_b$
- $\gamma_a = \gamma_c ; I_c = I_b$
- $\gamma_a = \gamma_b ; I_a = I_b$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 6323866844

Option 1 ID : 63238627373

Option 2 ID : 63238627374

Option 3 ID : 63238627375

Option 4 ID : 63238627376

Status : Answered

Chosen Option : 3

Q.27 A parallel plate air capacitor has a capacity 'C', distance of separation between its plates is 'x' and potential difference applied across the plates is V. What is the force of attraction between the plates of the parallel plate air capacitor?

- $\frac{C^2V^2}{2x^2}$

- $\frac{CV^2}{x}$

- $\frac{C^2V^2}{2x}$

- $\frac{CV^2}{2x}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 6323866856

Option 1 ID : 63238627421

Option 2 ID : 63238627422

Option 3 ID : 63238627423

Option 4 ID : 63238627424

Status : Answered

Chosen Option : 1

Q.28 Match List I with List II

LIST I		LIST II	
A.	Magnifying power of a simple microscope	I.	$\frac{L}{f_o} \times \frac{D}{f_e}$
B.	Magnifying power of a compound microscope	II.	$\frac{f_o}{f_e} \left(1 + \frac{f_e}{D} \right)$
C.	Magnifying power of a telescope (normal adjustment)	III.	$\left(1 + \frac{D}{f_e} \right)$
D.	Magnifying power of a telescope when final image is formed at least distance of distinct vision	IV.	$f_o f_e^{-1}$

(Symbols have their usual meanings)

Choose the correct answer from the options given below:

- 1. A-II, B-IV, C-I, D-III
- 2. A-IV, B-III, C-II, D-I
- 3. A-III, B-I, C-IV, D-II
- 4. A-I, B-II, C-III, D-IV

- Options
- 1. 1
 - 2. 2
 - 3. 3
 - 4. 4

Question Type : MCQ
Question ID : 6323866860
Option 1 ID : 63238627437
Option 2 ID : 63238627438
Option 3 ID : 63238627439
Option 4 ID : 63238627440
Status : Answered
Chosen Option : 4

Q.29 For transmitting a modulated signal of wave length λ , the antenna should have minimum size :

- 1. λ
- 2. $\frac{\lambda}{2}$
- 3. $\frac{\lambda}{4}$
- 4. 2λ

Options

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **6323866854**

Option 1 ID : **63238627413**

Option 2 ID : **63238627414**

Option 3 ID : **63238627415**

Option 4 ID : **63238627416**

Status : **Answered**

Chosen Option : **2**

Q.30 When temperature of a ferromagnetic material is increased by 20%, what is the percentage change in it's magnetic susceptibility?

- 1. 16.7%
- 2. 83.3%
- 3. 1.67%
- 4. 8.33%

Options

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **6323866825**

Option 1 ID : **63238627297**

Option 2 ID : **63238627298**

Option 3 ID : **63238627299**

Option 4 ID : **63238627300**

Status : **Answered**

Chosen Option : **3**

Q.31 A Television transmitting antenna is 84m tall. How much service area can it cover, if the receiving antenna is at the ground level?

(Given $\pi = \frac{22}{7}$)

1. 721 km²
2. 1075 km²
3. 1690 km²
4. 3379 km²

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **6323866855**

Option 1 ID : **63238627417**

Option 2 ID : **63238627418**

Option 3 ID : **63238627419**

Option 4 ID : **63238627420**

Status : **Answered**

Chosen Option : **1**

Q.32 A telescope has an objective lens of 0.1 m diameter and is situated at a distance of 500 m from two objects. What will be the minimum distance between these two objects which can be resolved by the telescope. The mean wavelength of light is 600 nm.

1. 1.46 mm
2. 0.37 mm
3. 3.66 mm
4. 1.21 mm

Options 1. 1

2. 2

3. 3

4. 4

Question Type : **MCQ**

Question ID : **6323866841**

Option 1 ID : **63238627361**

Option 2 ID : **63238627362**

Option 3 ID : **63238627363**

Option 4 ID : **63238627364**

Status : **Answered**

Chosen Option : **4**

Q.33 A proton and an alpha particle enter a uniform magnetic field with the same velocity and move along circular paths. The time period of the alpha particle will be:

1. Four times that of proton
2. Three times that of proton
3. Same as that of proton
4. Two times that of proton

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866824**

Option 1 ID : **63238627293**

Option 2 ID : **63238627294**

Option 3 ID : **63238627295**

Option 4 ID : **63238627296**

Status : **Answered**

Chosen Option : **4**

Q.34 Which one among the following shows particle nature of light?

1. Refraction
2. Interference
3. Photoelectric effect
4. Polarisation

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866845**

Option 1 ID : **63238627377**

Option 2 ID : **63238627378**

Option 3 ID : **63238627379**

Option 4 ID : **63238627380**

Status : **Answered**

Chosen Option : **3**

Q.35 A metal conductor of length 1m rotates in vertical plane about an axis passing through one of its ends at angular velocity 4 rad s^{-1} . What is the emf developed between the two ends of the conductor, if the horizontal component of the earth's magnetic field is 0.2 G ?

- 1. 4mV
- 2. 40mV
- 3. $4\mu\text{V}$
- 4. $40\mu\text{V}$

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **6323866832**
Option 1 ID : **63238627325**
Option 2 ID : **63238627326**
Option 3 ID : **63238627327**
Option 4 ID : **63238627328**
Status : **Answered**
Chosen Option : **1**

Q.36 The refractive index of air with respect to glass $\frac{2}{3}$. The refractive index of diamond with respect to air is 2.4. What will be the refractive index of glass with respect to diamond?

- 1. 0.28
- 2. 0.625
- 3. 1.60
- 4. 3.60

Options 1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**
Question ID : **6323866840**
Option 1 ID : **63238627357**
Option 2 ID : **63238627358**
Option 3 ID : **63238627359**
Option 4 ID : **63238627360**
Status : **Answered**
Chosen Option : **4**

Q.37 The total charge of an electric dipole is

(Where 'q' is the point charge on either side of the dipole and 'e' is the charge of an electron)

1. $2e$
2. $-2q$
3. $2q$
4. Zero

Options

1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866816**

Option 1 ID : **63238627261**

Option 2 ID : **63238627262**

Option 3 ID : **63238627263**

Option 4 ID : **63238627264**

Status : **Answered**

Chosen Option : **3**

Q.38 A resistance of 15Ω is connected in series with an unknown resistance R_1 . This combination is connected to one gap of a meter bridge, while a resistance R_2 is connected in the other gap. The balance point is at 50 cm. When 15Ω is removed, the balance point shifts by 10 cm. The value of R_1 is

1. 20Ω
2. 30Ω
3. 40Ω
4. 60Ω

Options

1. 1
2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866821**

Option 1 ID : **63238627281**

Option 2 ID : **63238627282**

Option 3 ID : **63238627283**

Option 4 ID : **63238627284**

Status : **Answered**

Chosen Option : **3**

Q.39 A pure silicon crystal has 5×10^{28} atoms m^{-3} . It is doped by 2ppm concentration of pentavalent arsenic. The number of holes are:

Consider $n_i = 1.5 \times 10^{16} \text{m}^{-3}$

1. $4.5 \times 10^9 \text{m}^{-3}$
2. $2.25 \times 10^9 \text{m}^{-3}$
3. $2.25 \times 10^{-9} \text{m}^{-3}$
4. $4.5 \times 10^{-9} \text{m}^{-3}$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866851**

Option 1 ID : **63238627401**

Option 2 ID : **63238627402**

Option 3 ID : **63238627403**

Option 4 ID : **63238627404**

Status : **Answered**

Chosen Option : **1**

Q.40 A radioactive isotope has a half life of T years. How long (in years) will it take the activity to reduce to 3.125% of its original value?

1. 4T
2. 5T
3. 3T
4. 6T

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866849**

Option 1 ID : **63238627393**

Option 2 ID : **63238627394**

Option 3 ID : **63238627395**

Option 4 ID : **63238627396**

Status : **Answered**

Chosen Option : **4**

Q.41 At the time of sunset the sun appears to be at an altitude higher than its actual position. This is because of

1. Absorption of light
2. Reflection of light
3. Refraction of light
4. Dispersion of light

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866838**

Option 1 ID : **63238627349**

Option 2 ID : **63238627350**

Option 3 ID : **63238627351**

Option 4 ID : **63238627352**

Status : **Not Answered**

Chosen Option : --

Q.42 When a number of capacitors are connected in parallel between two points increases, the equivalent capacitance

1. Decreases
2. Increases
3. Remains the same
4. Zero

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866811**

Option 1 ID : **63238627241**

Option 2 ID : **63238627242**

Option 3 ID : **63238627243**

Option 4 ID : **63238627244**

Status : **Not Answered**

Chosen Option : --

Q.43 When a steady current flows in a metallic conductor of non-uniform cross section. Which of these quantities is constant along the conductor.

- A. Current
- B. Electric field
- C. Drift speed
- D. Current density
- E. Potential gradient

Choose the correct answer from the options given below:

- 1. D Only
- 2. A, B and D Only
- 3. C and E Only
- 4. A Only

Options 1. 1

- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **6323866819**

Option 1 ID : **63238627273**

Option 2 ID : **63238627274**

Option 3 ID : **63238627275**

Option 4 ID : **63238627276**

Status : **Not Answered**

Chosen Option : --

Q.44 Match List I with List II

LIST I		LIST II	
A.	Gyromagnetic ratio	I.	$4 \times 10^{-5} \text{ T}$
B.	Permeability of free space	II.	$9.27 \times 10^{-24} \text{ A m}^2$
C.	Earth's magnetic field at equator	III.	$8.8 \times 10^{10} \text{ C/kg}$
D.	Bohr magnetron	IV.	$12.56 \times 10^{-7} \text{ T m A}^{-1}$

Choose the correct answer from the options given below:

1. A-III, B-IV, C-II, D-I
2. A-IV, B-III, C-II, D-I
3. A-III, B-IV, C-I, D-II
4. A-II, B-III, C-IV, D-I

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 6323866822

Option 1 ID : 63238627285

Option 2 ID : 63238627286

Option 3 ID : 63238627287

Option 4 ID : 63238627288

Status : Not Answered

Chosen Option : --

Q.45 Which of the following combinations should be used for better tuning of an LCR circuit used for communication?

1. $R = 25 \Omega$, $L = 1.5 \text{ H}$, $C = 35 \mu\text{F}$
2. $R = 25 \Omega$, $L = 2.0 \text{ H}$, $C = 45 \mu\text{F}$
3. $R = 15 \Omega$, $L = 3.5 \text{ H}$, $C = 30 \mu\text{F}$
4. $R = 15 \Omega$, $L = 1.0 \text{ H}$, $C = 40 \mu\text{F}$

Options 1. 1

2. 2

3. 3

4. 4

Question Type : MCQ

Question ID : 6323866831

Option 1 ID : 63238627321

Option 2 ID : 63238627322

Option 3 ID : 63238627323

Option 4 ID : 63238627324

Status : Not Answered

Chosen Option : --

Q.46 Match the different types of Electro Magnetic Waves and their detections

LIST I		LIST II	
Electro Magnetic waves		Detection of Electromagnetic wave	
A.	Light	I.	Receiver's arial
B.	Infra red	II.	Point contact diodes
C.	Radiowave	III.	Photocells
D.	Microwave	IV.	Thermopiles.

Choose the correct answer from the options given below:

- 1. A-IV, B-III, C-II, D-I
- 2. A-III, B-IV, C-I, D-II
- 3. A-II, B-I, C-III, D-IV
- 4. A-I, B-II, C-IV, D-III

- Options
- 1. 1
 - 2. 2
 - 3. 3
 - 4. 4

Question Type : MCQ
Question ID : 6323866834
Option 1 ID : 63238627333
Option 2 ID : 63238627334
Option 3 ID : 63238627335
Option 4 ID : 63238627336
Status : Not Answered
Chosen Option : --

Q.47 Which one of the following can not be polarized?

- 1. Light waves
- 2. Sound waves
- 3. X-rays
- 4. Radio-waves

- Options
- 1. 1
 - 2. 2
 - 3. 3
 - 4. 4

Question Type : MCQ
Question ID : 6323866842
Option 1 ID : 63238627365
Option 2 ID : 63238627366
Option 3 ID : 63238627367
Option 4 ID : 63238627368
Status : Not Answered
Chosen Option : --

Q.48 An infinitely long straight conductor carries a current of 150 A. At what distance from the conductor is the magnetic field caused by the current equal to 10^{-4} T?

1. 1.5 m
2. 0.3 m
3. 3.0 m
4. 0.15 m

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866826**

Option 1 ID : **63238627301**

Option 2 ID : **63238627302**

Option 3 ID : **63238627303**

Option 4 ID : **63238627304**

Status : **Not Answered**

Chosen Option : --

Q.49 Arrange the following in the increasing order of de-Broglie wavelength:

- A. A bullet of mass 0.02kg travelling at the speed of 3.3 Km/s.
- B. A ball of mass 0.0331kg moving with speed of 2 m/s.
- C. A dust particle of mass 2×10^{-10} Kg drifting with a speed of 3.3 m/s.
- D. A photon having a momentum of 6.63×10^{-26} kg m/s.
- E. An electron accelerated through a potential difference of 100V.

Choose the correct answer from the options given below:

1. $B < A < C < E < D$
2. $B < A < C < D < E$
3. $B < A < D < C < E$
4. $A < B < C < E < D$

Options 1. 1

2. 2
3. 3
4. 4

Question Type : **MCQ**

Question ID : **6323866843**

Option 1 ID : **63238627369**

Option 2 ID : **63238627370**

Option 3 ID : **63238627371**

Option 4 ID : **63238627372**

Status : **Not Answered**

Chosen Option : --

Q.50 The capacitance of a capacitor is $4\mu\text{F}$ and its potential is 100 V. The energy released on discharging it fully will be

- 1. 0.02 J
- 2. 0.04 J
- 3. 0.025 J
- 4. 0.05 J

Options

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Type : **MCQ**

Question ID : **6323866814**

Option 1 ID : **63238627253**

Option 2 ID : **63238627254**

Option 3 ID : **63238627255**

Option 4 ID : **63238627256**

Status : **Not Answered**

Chosen Option : --

Prepp
Your Personal Exam Guide