

Subject: Physics
Set Name: V2_SET3
Code: 322
Exam Date: 18-04-2026
SLOT: 1

Question ID	263884
Question Type	MCQ
Question	In a Young's double slit experiment, the ratio of the intensities of minima to the maxima is 9 : 25. The ratio of the widths of two slits is: 1. 8 : 1 2. 16 : 1 3. 1 : 4 4. 2 : 1
Options	
A	1
B	2
C	3
D	4

Question ID	263887
Question Type	MCQ
Question	A small object is placed at a distance of 3.6 cm from a magnifier of focal length 4.0 cm. The linear magnification will be 1. 5 2. 10 3. 15 4. 20
Options	
A	1
B	2
C	3
D	4

Question ID	263894
Question Type	MCQ
Question	Nuclear density of ${}^{64}_{29}\text{Cu}$ nucleus is [Given 1 a.m.u = 1.66×10^{-27} Kg , $R_0 = 1.2$ fm] 1. 2.3×10^{17} kg/m³ 2. 3.3×10^{17} kg/m³ 3. 1.3×10^{17} kg/m³ 4. 4.3×10^{17} kg/m³
Options	
A	1
B	2
C	3
D	4

Question ID	263896
Question Type	MCQ
	Choose the CORRECT statements in relation to the properties of the electrostatic and magnetic fields: (A) The magnetic field and Electric field both are of long range. (B) The Electrostatic field is produced by vector source

	(C) The magnetic field is produced by scalar source.
Question	(D) The electrostatic field is along the displacement vector joining the source and the field point.
	Choose the correct answer from the options given below:
	1. (A) and (D) only
	2. (A), (B), (C) and (D)
	3. (B) and (C) only
	4. (A) and (C) only
Options	
A	1
B	2
C	3
D	4

Question ID	263904
Question Type	MCQ
	Arrange the following discoveries in chronological order - (A) Discovery of electron (B) Rutherford's nuclear model of atom (C) Discovery of neutron (D) Bohr's model of atom Choose the correct answer from the options given below: 1. (A), (B), (D), (C) 2. (A), (B), (C), (D) 3. (A), (C), (B), (D) 4. (A), (C), (D), (B)
Question	
Options	
A	1
B	2
C	3
D	4

Question ID	263914												
Question Type	MCQ												
	Match List-I with List-II <table> <tr> <th>List-I</th><th>List-II</th></tr> <tr> <th>(Law)</th><th>(Integral form)</th></tr> <tr> <td>(A) Faraday's law</td><td>(I) $\oint \vec{E} \cdot d\vec{A} = Q_{enc}/\epsilon_0$</td></tr> <tr> <td>(B) Ampere-Maxwell law</td><td>(II) $\oint \vec{E} \cdot d\vec{l} = \frac{-d\Phi_B}{dt}$</td></tr> <tr> <td>(C) Gauss's law for magnetism</td><td>(III) $\oint \vec{B} \cdot d\vec{l} = \mu_0 i_c + \mu_0 \epsilon_0 \frac{d\phi_E}{dt}$</td></tr> <tr> <td>(D) Gauss's law for electricity</td><td>(IV) $\oint \vec{B} \cdot d\vec{A} = 0$</td></tr> </table>	List-I	List-II	(Law)	(Integral form)	(A) Faraday's law	(I) $\oint \vec{E} \cdot d\vec{A} = Q_{enc}/\epsilon_0$	(B) Ampere-Maxwell law	(II) $\oint \vec{E} \cdot d\vec{l} = \frac{-d\Phi_B}{dt}$	(C) Gauss's law for magnetism	(III) $\oint \vec{B} \cdot d\vec{l} = \mu_0 i_c + \mu_0 \epsilon_0 \frac{d\phi_E}{dt}$	(D) Gauss's law for electricity	(IV) $\oint \vec{B} \cdot d\vec{A} = 0$
List-I	List-II												
(Law)	(Integral form)												
(A) Faraday's law	(I) $\oint \vec{E} \cdot d\vec{A} = Q_{enc}/\epsilon_0$												
(B) Ampere-Maxwell law	(II) $\oint \vec{E} \cdot d\vec{l} = \frac{-d\Phi_B}{dt}$												
(C) Gauss's law for magnetism	(III) $\oint \vec{B} \cdot d\vec{l} = \mu_0 i_c + \mu_0 \epsilon_0 \frac{d\phi_E}{dt}$												
(D) Gauss's law for electricity	(IV) $\oint \vec{B} \cdot d\vec{A} = 0$												
Question													
	Choose the correct answer from the options given below:												

Choose the correct answer from the options given below.

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

Options

A	1
B	2
C	3
D	4

Question ID 263918

Question Type MCQ

A 0.5 m long solenoid has 500 turns and has a magnetic flux density $2.52 \times 10^{-3} \text{ T}$ at its centre. The current flowing in the solenoid is

[Given: $\mu_0 = 4\pi \times 10^{-7} \text{ TmA}^{-1}$]

- Question**
1. 1.5 A
 2. 2.0 A
 3. 2.9 A
 4. 3.2 A

Options

A	1
B	2
C	3
D	4

Question ID 263919

Question Type MCQ

A ring of 10 cm radius carries a uniformly distributed charge. The ring rotates at a constant angular speed of $40 \pi \text{ rad s}^{-1}$ about its axis, perpendicular to its plane. If the magnetic field at its centre is $3.8 \times 10^{-9} \text{ T}$, then the charge carried by the ring is

- Question**
1. $4 \times 10^{-5} \text{ C}$
 2. $3 \times 10^{-5} \text{ C}$
 3. $2 \times 10^{-6} \text{ C}$
 4. $7 \times 10^{-6} \text{ C}$

Options

A	1
B	2
C	3
D	4

Question ID 264013

Question Type MCQ

A laser beam has intensity $2.5 \times 10^{14} \text{ W m}^{-2}$. The amplitude of the electric field in the beam is

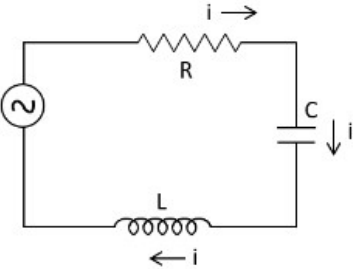
(Given : $\epsilon_0 = 8.85 \times 10^{12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$)

- Question**
1. $4.3 \times 10^7 \text{ V m}^{-1}$
 2. $4.3 \times 10^8 \text{ V m}^{-1}$
 3. $4.2 \times 10^9 \text{ V m}^{-1}$
 4. $6.2 \times 10^8 \text{ V m}^{-1}$

Options

A	1
B	2
C	3

D	4
Question ID	264032
Question Type	MCQ
Question	A monochromatic source of the light operating at 100 W emits 4×10^{20} photons per second. The wavelength of the light is : 0.70 nm 0.80 nm 0.70 μm 0.80 μm
Options	
A	1
B	2
C	3
D	4

Question ID	264034
Question Type	MCQ
Question	In the ac circuit as shown in figure, resistance R is 200 Ω , the capacitance C is 15 μF, and inductance is 230 mH. If the sinusoidal alternating emf has amplitude 72 V and frequency 60 Hz , then amplitude of the current is :  1.64 A 1.46 A 0.66 A 0.33 A
Options	
A	1
B	2
C	3
D	4

Question ID	264045
Question Type	MCQ
Question	A transformer in a power station operates at $V_p = 8.5 \text{ kV}$ on the primary side and supplies electrical energy to a village at secondary voltage $V_s = 240 \text{ V}$. Considering that the transformer has purely a resistive load, and a power factor of unity, the ratio of turns in primary to secondary $\left(\frac{N_p}{N_s}\right)$ is : 70.8 50.8 35.4 25.4
Options	
A	1
B	2
C	3
D	4

Question ID	264050
Question Type	MCQ
Question	A polarized sheet is rotated between two crossed polaroids. Which one of the following is CORRECT relation for transmitted intensity? [Here symbols are usual meaning] 1. $I = \frac{I_0}{4} \operatorname{cosec}^2 2\theta$ 2. $I = \frac{I_0}{4} \sec^2 2\theta$ 3. $I = \frac{I_0}{4} \sin^2 2\theta$ 4. $I = \frac{I_0}{4} \cos^2 2\theta$
Options	
A	1
B	2
C	3
D	4

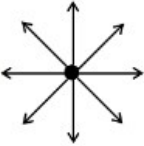
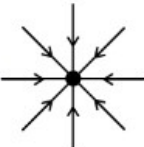
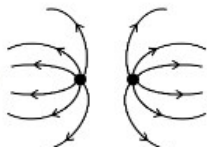
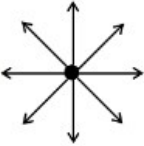
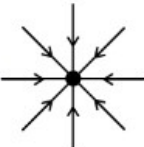
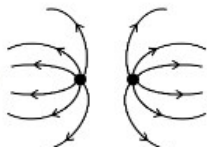
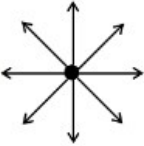
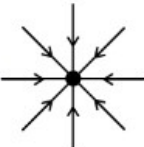
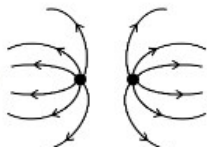
Question ID	264054
Question Type	MCQ
Question	Which one of the following statements is CORRECT about Young's double slit interference and single slit diffraction experiments? 1. Double slit gives unequally spaced interference fringes. 2. Single slit gives a diffraction pattern with zero intensity at central maxima. 3. Double slit gives equally spaced interference fringes. 4. Single slit gives diffraction pattern with increasing intensity for successive secondary and tertiary maxima.
Options	
A	1
B	2
C	3
D	4

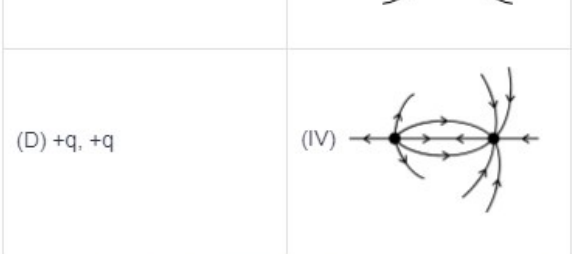
Question ID	264058
Question Type	MCQ
Question	The magnetic energy stored in a solenoid of cross-sectional area A, length l and magnetic field $\vec{B}$ inside it, is given by : 1. $\frac{B^2}{Al}$ 2. $B^2 Al$ 3. $\frac{1}{2\mu_0} B^2 Al$ 4. $\frac{\mu_0}{2} B^2 Al$
Options	
A	1
B	2
C	3
D	4

Question ID	264072
Question Type	MCQ
Question	The magnetic field in a plane electromagnetic wave is given by : $\vec{B}_y = 3 \times 10^{-6} \sin(3x + 4t) \hat{j} \text{ (T)}$

Question	Which one of following is CORRECT expression of electric field $\vec{E}$ associated with the wave?
Options	1. $900 \sin(3x + 4t) \hat{k} \text{ V/m}$ 2. $900 \sin(3x + 4t) \hat{j} \text{ V/m}$ 3. $900 \sin(3x + 4t) \hat{i} \text{ V/m}$ 4. $-900 \sin(4x + 3t) \hat{j} \text{ V/m}$
A	1
B	2
C	3
D	4

Question ID	264088
Question Type	MCQ
Question	Arrange the following nuclear fusion reactions in ascending order of the energies liberated in the Sun. (A) ${}^3_2\text{He} + {}^3_2\text{He} \longrightarrow {}^4_2\text{He} + {}^1_1\text{H} + {}^1_1\text{H} + E_1$ (B) $e^+ + e^- \longrightarrow \gamma + \gamma + E_2$ (C) ${}^2_1\text{H} + {}^1_1\text{H} \longrightarrow {}^3_2\text{He} + \gamma + E_3$ (D) ${}^1_1\text{H} + {}^1_1\text{H} \longrightarrow {}^2_1\text{H} + e^+ + \nu + E_4$ Choose the correct answer from the options given below: 1. (D), (A), (C), (B) 2. (D), (A), (B), (C) 3. (D), (C), (B), (A) 4. (D), (B), (C), (A)
Options	
A	1
B	2
C	3
D	4

Question ID	264097										
Question Type	MCQ										
Question	Match List-I with List-II for different charge configurations and associated electric field lines. <table> <tr> <th>List-I</th><th>List-II</th></tr> <tr> <th>(Charge configurations)</th><th>(Electric field lines)</th></tr> <tr> <td>(A) +q, -q</td><td>(I) </td></tr> <tr> <td>(B) q > 0</td><td>(II) </td></tr> <tr> <td>(C) q < 0</td><td>(III) </td></tr> </table>	List-I	List-II	(Charge configurations)	(Electric field lines)	(A) +q, -q	(I) 	(B) q > 0	(II) 	(C) q < 0	(III) 
List-I	List-II										
(Charge configurations)	(Electric field lines)										
(A) +q, -q	(I) 										
(B) q > 0	(II) 										
(C) q < 0	(III) 										



Choose the **correct** answer from the options given below:

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

Options

- | | |
|---|---|
| A | 1 |
| B | 2 |
| C | 3 |
| D | 4 |

Question ID 264127
Question Type MCQ

Choose the CORRECT statements about Lorentz force and its properties:

- (A) Lorentz force depends on $q, \vec{v}, \vec{B}$; where q is the charge of a particle moving with velocity $\vec{v}$ in a magnetic field $\vec{B}$.
- (B) Magnetic force vanishes, if velocity and magnetic field are antiparallel.
- (C) The magnetic force vanishes, if charge is stationary.
- (D) Magnetic force also defines the unit of magnetic field.

Choose the **correct** answer from the options given below:

1. (A), (B) and (C) only
2. (A), (B), (C) and (D)
3. (B), (C) and (D) only
4. (A), (B) and (D) only

Options

- | | |
|---|---|
| A | 1 |
| B | 2 |
| C | 3 |
| D | 4 |

Question ID 264128
Question Type MCQ

What is the energy gap between conduction band and valence band for Silicon (Si)?

1. 5.4 eV
2. 3.0 eV
3. 1.1 eV
4. 0.7 eV

Options

- | | |
|---|---|
| A | 1 |
| B | 2 |
| C | 3 |
| D | 4 |

Question ID 264130
Question Type MCQ

When forward bias is applied to a p-n Junction it _____.

1. increases the height of potential barrier.
2. decreases the height of potential barrier.
3. decreases minority carrier concentration on either side of the junction.
4. decreases the majority carrier current.

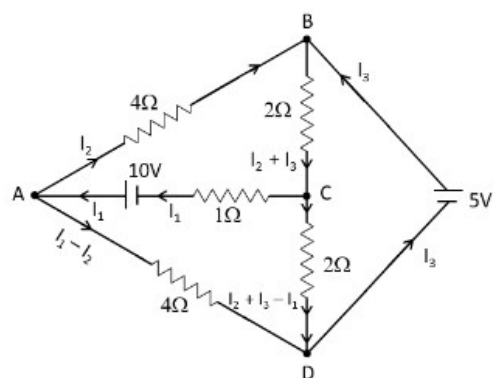
Options

- A 1
- B 2
- C 3
- D 4

Question ID 264185

Question Type MCQ

Consider the circuit as shown below. The value of current I_1 , is :



1. $5/2$ A
2. $7/2$ A
3. $5/8$ A
4. $15/8$ A

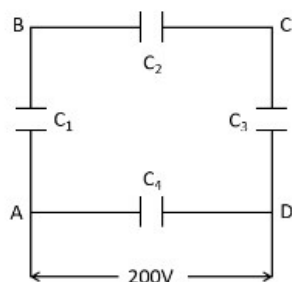
Options

- A 1
- B 2
- C 3
- D 4

Question ID 264200

Question Type MCQ

A network of four $20\text{ }\mu\text{F}$ capacitors is connected to a 200 V supply as shown in figure. The charge on each capacitor is given by



1. $q_1 = q_2 = q_3 = 2 \times 10^{-3}\text{ C}$, $q_4 = 4 \times 10^{-3}\text{ C}$
2. $q_1 = q_2 = q_3 = 2 \times 10^{-3}\text{ C}$, $q_4 = 3.33 \times 10^{-4}\text{ C}$
3. $q_1 = q_2 = q_3 = 1.33 \times 10^{-3}\text{ C}$, $q_4 = 4 \times 10^{-3}\text{ C}$
4. $q_1 = q_2 = q_3 = 1.33 \times 10^{-4}\text{ C}$, $q_4 = 3.33 \times 10^{-4}\text{ C}$

Options

- A 1

B	2
C	3
D	4

Question ID 264186

Question Type MCQ

Question

Consider a thin spherical shell of uniform surface charge density ' σ '. If $\vec{E}_1$ is electric field for $r \geq R$, and $\vec{E}_2$ is electric field for $r < R$, then, $\frac{|\vec{E}_1|}{|\vec{E}_2|}$ is :

[Here, R is the radius of the shell, r is distance of the observation point from the center of the shell.]

Options

A1

B2

C3

D4

1. ∞

2. 0

3. $\frac{q}{4\pi\epsilon_0 r^2} \hat{r}$

4. $\frac{1}{2} \frac{q}{4\pi\epsilon_0 r^2} \hat{r}$

Question ID 264187

Question Type MCQ

Question

Three charges q_1, q_2, q_3 are distributed as shown in the figure given below. The magnitude of total electric field ($\vec{E}$) at the origin is:

[Given, $q_1 = +2Q, q_2 = -4Q, q_3 = -2Q$]

Options

A1

B2

C3

D4

1. $\frac{4\sqrt{2}Q}{4\pi \epsilon_0 d^2}$

2. $\frac{2\sqrt{2}Q}{4\pi \epsilon_0 d^2}$

3. $\frac{4Q}{4\pi \epsilon_0 d^2}$

4. $\frac{2Q}{4\pi \epsilon_0 d^2}$

Question ID 264188

Question Type MCQ

Arrange the following transitions in ascending order of the energy released from de-excitation of atomic levels of hydrogen atom.

(A) $n = 5$ to $n = 3$

Question	(B) $n = 4$ to $n = 2$
	(C) $n = 3$ to $n = 1$
	(D) $n = 2$ to $n = 1$
	Choose the correct answer from the options given below:
Options	1. (A), (C), (B), (D)
	2. (A), (C), (D), (B)
	3. (A), (B), (D), (C)
	4. (D), (C), (A), (B)
A	1
B	2
C	3
D	4

Question ID	264191												
Question Type	MCQ												
Question	Match List-I with List-II												
	<table><tr><th>List-I</th><th>List-II</th></tr><tr><td>(Type of semiconductor)</td><td>(Relation among n_e , n_h and n_i)</td></tr><tr><td>(A) Intrinsic semiconductor</td><td>(I) $n_e n_h = n_i^2$</td></tr><tr><td>(B) n - type semiconductor</td><td>(II) $n_h \gg n_e$</td></tr><tr><td>(C) p - type semiconductor</td><td>(III) $n_e = n_i$</td></tr><tr><td>(D) Doped semiconductor at thermal equilibrium</td><td>(IV) $n_e \gg n_h$</td></tr></table>	List-I	List-II	(Type of semiconductor)	(Relation among n_e , n_h and n_i)	(A) Intrinsic semiconductor	(I) $n_e n_h = n_i^2$	(B) n - type semiconductor	(II) $n_h \gg n_e$	(C) p - type semiconductor	(III) $n_e = n_i$	(D) Doped semiconductor at thermal equilibrium	(IV) $n_e \gg n_h$
	List-I	List-II											
	(Type of semiconductor)	(Relation among n_e , n_h and n_i)											
	(A) Intrinsic semiconductor	(I) $n_e n_h = n_i^2$											
	(B) n - type semiconductor	(II) $n_h \gg n_e$											
	(C) p - type semiconductor	(III) $n_e = n_i$											
(D) Doped semiconductor at thermal equilibrium	(IV) $n_e \gg n_h$												
Choose the correct answer from the options given below:													
1. (A) - (III), (B) - (I), (C) - (IV), (D) - (II)													
2. (A) - (III), (B) - (I), (C) - (II), (D) - (IV)													
3. (A) - (III), (B) - (IV), (C) - (II), (D) - (I)													
4. (A) - (III), (B) - (II), (C) - (IV), (D) - (I)													
Options													
A	1												
B	2												
C	3												
D	4												

Question ID	264196
Question Type	MCQ
Question	Choose the CORRECT statements about diamagnetic and paramagnetic materials.
	[Symbols have their usual meanings.]
	(A) Diamagnetic material has $\mu < \mu_0$
	(B) Paramagnetic material has $\mu > \mu_0$
Options	(C) Diamagnetic material has $1 < \mu_r < 1 + \epsilon$
A	
B	
C	
D	

(D) Paramagnetic material has $0 < \chi < \infty$

Choose the **correct** answer from the options given below:

- 1. (A), (B) and (D) only
- 2. (A), (B), (C) and (D)
- 3. (A), (C) and (D) only
- 4. (B), (C) and (D) only

Options

A	1
B	2
C	3
D	4