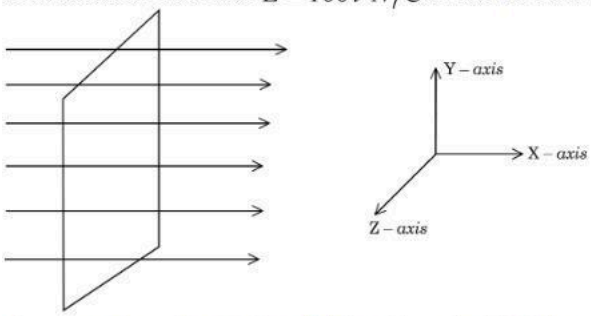
PREVIEW QUESTION BANK(Single)

Module Name : NCET Language: ENGLISH
Section Name : 322-Physics
Exam Date : 29-Apr-2025 Batch : 09:00-12:00

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Ne M
Section : 322-Physics				
Topic : Topic 115				
Q.Type : Objective Question				
1	4649	A uniform electric field $\vec{E} = 100\,\hat{i}\ N/C$ is shown below :  A square plate of area $20cm^2$ lying along the Y-Z plane is placed in the uniform electric field. The electric flux through the plate is : 1. $2x10^{-1}$ Nm^2/C 2. $2x10^{-2}$ Nm^2/C 3. $2x10^{-3}$ Nm^2/C 4. zero (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00
Q.Type : Objective Question				
2	4650	Which of the following statements is wrong about an electric charge? 1. electric charge has only magnitude. 2. electric charge has magnitude and direction. 3. Total electric charge of an isolated system is always conserved. 4. The electric charge is always quantised (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00
Q.Type : Objective Question				
3	4651		4.0	1.00

Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	Electric field due to an infinitely long straight uniformly charged wire.	I.	$\left\|\vec{E}\right\| = \frac{\sigma}{2\varepsilon_0}$ (σ is surface charge density)
B.	Electric field outside a uniformly charged thin spherical shell.	II.	$\left\|\vec{E}\right\| = \frac{1}{2\pi\varepsilon_0}\left(\frac{\lambda}{r}\right)$ (λ is linear charge density)
C.	Electric field inside a uniformly charged thin spherical shell.	III.	$\left\|\vec{E}\right\| = \frac{1}{4\pi\varepsilon_o}\frac{q}{r^2}$
D.	Electric field due to a uniformly charged infinite plane sheet	IV.	zero

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

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

(A) 1

(B) 2

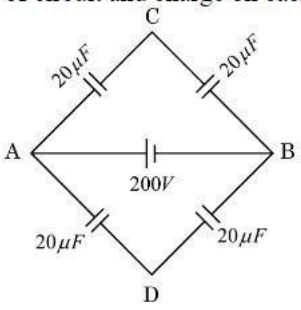
(C) 3

(D) 4

Q.Type : Objective Question

4 | 4652 | 4.0 | 1.00

A network of four 20 μF capacitors are connected to a 200 V supply. The equivalent capacitance of circuit and charge on each capacitor is :



1. 20 μF, $2\text{x}10^{-6}$ C
2. 40 μF, $2\text{x}10^{-6}$ C
3. 20 μF, $2\text{x}10^{-3}$ C
4. 40 μF, $2\text{x}10^{-3}$ C

(A) 1

(B) 2

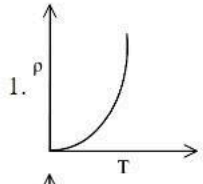
(C) 3

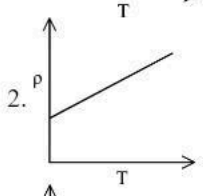
(D) 4

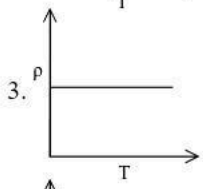
Q.Type : Objective Question

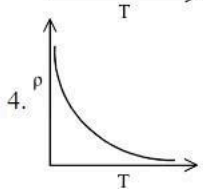
5 | 4653 | 4.0 | 1.00

The graph showing variation of resistivity with temperature for a typical semi-conductor is?

1. 

2. 

3. 

4. 

(A) 1

(B) 2

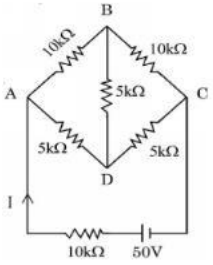
(C) 3

(D) 4

Q.Type : Objective Question

6 4654

The value of 'I' in the network is :



1. 2 mA
2. 3 mA
3. 5 mA
4. 10 mA

(A) 1

(B) 2

(C) 3

(D) 4

4.0 1.00

Q.Type : Objective Question

7 4655

4.0 1.00

Match the **LIST-I** with **LIST-II**

	LIST-I		LIST-II
A.	Equivalent emf of series combination of 'n' cells	I.	$\frac{1}{r_{eq}}=\frac{1}{r_1}+\frac{1}{r_2}....\frac{1}{r_n}$
B.	Equivalent emf of parallel combination of 'n' cells	II.	$\varepsilon_{eq}=\varepsilon_1+\varepsilon_2....\varepsilon_n$
C.	Equivalent internal resistance of a series combination of 'n' cells	III.	$\frac{\varepsilon_{eq}}{r_{eq}}=\frac{\varepsilon_1}{r_1}+\frac{\varepsilon_2}{r_2}....\frac{\varepsilon_n}{r_n}$
D.	Equivalent internal resistance of a parallel combination of 'n' cells	IV.	$r_{eq}=r_1+r_2....r_n$

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

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

(A) 1

(B) 2

(C) 3

(D) 4

Q.Type : Objective Question

8 | 4656 | 4.0 | 1.00

The statement which is **not** correct for a magnetic force on an electric charge :

1. Magnetic force due to magnetic field becomes zero, if it's velocity and magnetic field are parallel or anti - parallel.
2. Magnetic force is maximum, if it's velocity and magnetic field are perpendicular to each other.
3. Magnetic force is non- zero, if charge is not moving.
4. Direction of magnetic force on a negative charge is opposite to that on a positive charge.

(A) 1

(B) 2

(C) 3

(D) 4

Q.Type : Objective Question

9 | 4657 | 4.0 | 1.00

The correct statements with respect to Biot-Savart's law and Coulomb's Law are :

A. Applicable for long range.
B. The electrostatic field as well as the magnetic field both are produced by a scalar source.
C. There is an angle dependence in the Biot - Savart's law which is not so in the electrostatic case.
D. The principle of superposition applies to both fields.

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

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

(A) 1

(B) 2

(C) 3

(D) 4

Q.Type : Objective Question

10	4658	Two long straight parallel conductors are carrying steady current of 10 A and 20 A respectively along the same direction. Force on a segment of 10 cm length of each conductor due to the other, separated by 10 cm distance is : 1. 4 x10^{-3}N, force of attraction 2. 4 x10^{-3}N, force of repulsion 3. 4 x10^{-5}N, force of attraction 4. 4 x10^{-5}N, force of repulsion (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00

Q.Type : Objective Question

11	4659	A closely wound solenoid of 2000 turns and area of cross section 1.6x10^{-4} m^2, carrying a current of 4 A is suspended through its centre allowing it to turn in a horizontal plane. If a uniform magnetic field of 7.5x10^{-2} T is setup at an angle of 30° with the axis of the solenoid, then torque on the solenoid is : 1. 4.8x10^{-1} N-m 2. 4.8x10^{-2} N-m 3. 4.8x10^{-4} N-m 4. zero (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00

Q.Type : Objective Question

12	4660	The ratio of e.m.f induced in two coils is 2 : 3. If the change of flux associated with each turn in the two coils is same, then the ratio of number of turns in the two coils is : 1. 4 : 9 2. 9 : 4 3. 3 : 2 4. 2 : 3 (A) 1 (B) 2	4.0	1.00

(C) 3

(D) 4

Q.Type : Objective Question

13	4661	A series R-C circuit is connected to an AC voltage source. consider two cases (**A**) when capacitor is without a dielectric medium and (**B**) when capacitor is filled with dielectric of constant 'K'. The current I_R through the resistor and voltage V_c across the capacitor are compared in the two cases. Which of the following is true? 1. $I_R^A > I_R^B$ 2. $I_R^A < I_R^B$ 3. $I_R^A = I_R^B$ 4. $V_C^A < V_C^B$ (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00

Q.Type : Objective Question

14	4662	In a step up transformer, if input voltage and current are 220 V and 10 A, and the ratio of turns in the secondary to primary coil is 4 : 1, then output voltage and current are respectively : 1. 880 V and 2.5 A 2. 440 V and 5 A 3. 220 V and 7.5 A 4. 110 V and 10 A (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00

Q.Type : Objective Question

15	4663	Arrange the following coils of same length with given number of turns and area of cross sections, in decreasing order of their self inductance. A. n=100, A=10 cm^2 B. n=10, A=20 cm^2 C. n=20, A=20 cm^2 D. n=50, A=25 cm^2 E. n=75, A=15 cm^2 Choose the **correct** answer from the options given below: 1. E, D, C, B, A 2. A, E, D, C, B 3. A, E, C, B, D 4. D, C, E, B, A	4.0	1.00

(A) 1

(B) 2

(C) 3

(D) 4

Q.Type : Objective Question

16 | 4664 | 4.0 | 1.00

Arrange the following electromagnetic waves in increasing order of their energies.

A. X-rays
B. Ultraviolet rays
C. Micro waves
D. γ-rays
E. Radio waves

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

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

(A) 1

(B) 2

(C) 3

(D) 4

Q.Type : Objective Question

17 | 4665 | 4.0 | 1.00

The magnetic field in a plane electromagnetic wave is given by $B_y = (2\times10^{-7}\ T)\ \sin(0.5\times10^{3}x+1.5\times10^{11}t)$. The energy of the wave is:
(If $h=6.63\times10^{-34}$ SI unit)

1. 8.7×10^{-24}J
2. 15.8×10^{-24}J
3. 18.6×10^{-24}J
4. 21.5×10^{-24}J

(A) 1

(B) 2

(C) 3

(D) 4

Q.Type : Objective Question

18 | 4666 | 4.0 | 1.00

When white light enters a prism, it gets split into its constituent colours. This is due to :

1. high density of prism material
2. different μ (refractive indices) for different wavelengths
3. diffraction of light
4. velocity changes for different frequencies

(A) 1

(B) 2

(C) 3

(D) 4

Q.Type : Objective Question

19	4667	Choose the correct statements from the following : A. When a plane wavefront passes through a convex lens, the refracted wavefront is also plane. B. Diffraction from each slit affects the interference pattern in a double slit experiment. C. The angular width of central maximum in a diffraction pattern is directly proportional to the slit width. D. Light wave can be polarized while sound waves cannot be polarized. Choose the **correct** answer from the options given below: 1. A and B Only 2. B and C Only 3. B and D Only 4. A and C Only (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00

Q.Type : Objective Question

20	4668	If the refractive index from air to glass is $\frac{3}{2}$ and that from air to water is $\frac{4}{3}$, the ratio of focal lengths of a glass lens in water and in air is : 1. 3 : 2 2. 2 : 3 3. 4 : 1 4. 16 : 1 (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00

Q.Type : Objective Question

21	4669	If one of two identical slits producing interference in Young's experiment is covered with glass, so that the light intensity passing through it, is reduced to 50%, then the ratio of the maximum and minimum intensity of fringe in the interference pattern is : 1. 18 2. 27 3. 34 4. 49 (A) 1	4.0	1.00

(B) 2

(C) 3

(D) 4

Q.Type : Objective Question

22	4670	Choose the **correct** statements from the following A. Two metal plates of same surface area and work function are irradiated by a beam of light incident normally. It is found that the photoelectric current from the two metals are different. B. In photoelectric emission, the maximum kinetic energy of the photoelectrons increase with the increase in intensity of the incident light. C. For a monochromatic radiation, incident on a photo sensitive surface, all the photoelectrons come out with the same energy. D. Photo emission from a photo-sensitive surface is possible only if the incident radiation has frequency above the threshold frequency. Choose the **correct** answer from the options given below: 1. A and B Only 2. B and C Only 3. C and D Only 4. A and D Only (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00

Q.Type : Objective Question

23	4671	An $\propto$-particle and a proton are accelerated through the same potential difference. The ratio of linear momenta acquired by the particles is : 1. $2\sqrt{2}:1$ 2. $4:1$ 3. $3\sqrt{2}:1$ 4. $1:4\sqrt{2}$ (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00

Q.Type : Objective Question

24	4672		4.0	1.00

Arrange the following elements in the increasing order of their binding energy per nucleon.

A. ^{56}Fe
B. ^{32}S
C. ^{6}Li
D. ^{4}He
E. ^{12}C

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

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

(A) 1

(B) 2

(C) 3

(D) 4

Q.Type : Objective Question

25 | 4673 | 4.0 | 1.00

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	Discovery of nucleus	I.	Henry Becquerel
B.	Discovery of neutron	II.	Pauli
C.	Discovery of radioactivity	III.	Rutherford
D.	Discovery of neutrino	IV.	James Chadwick

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

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

(A) 1

(B) 2

(C) 3

(D) 4

Q.Type : Objective Question

26 | 4674 | 4.0 | 1.00

The shortest wavelength for Lyman series of the hydrogen spectrum is 913.4 Å. The shortest wavelength for Balmer series of the hydrogen spectrum is :

1. 913.4 Å
2. 1826.8 Å
3. 3653.6 Å
4. 4567 Å

(A) 1

(B) 2

		(C) 3 (D) 4		
Q.Type : Objective Question				
27	4675	In semiconductor at room temperature : 1. the valence band is partially empty and conduction band is partially filled 2. the valence band is completely filled and conduction band is partially filled 3. the valence band is completely filled 4. the conduction band is completely empty (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00
Q.Type : Objective Question				
28	4676	The semiconductor has equal electrons and holes concentration of $6x10^{8}$ m^{-3}. On doping with certain impurity, electron concentration increases to $9x10^{12}$ m^{-3}. The new hole concentration becomes : 1. $4x10^{4}$ m^{-3} 2. $15x10^{3}$ m^{-3} 3. 7.8×10^{4} m^{-3} 4. 16.8×10^{4} m^{-3} (A) 1 (B) 2 (C) 3 (D) 4	4.0	1.00