

CATSE-2025
CAREER ACADEMY TALENT SEARCH EXAM



FREE PARTICIPATION
For Class 12TH (SCIENCE)

TEST DATE
8th & 9th NOVEMBER 2024

NOTE :-

- For previous year papers & sample papers visit www.careeracademy.in

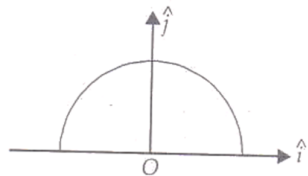
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12TH CLASS**PHYSICS**

Q.1 Three charges are placed at the vertices of an equilateral triangle of side 'a' as shown in the following figure. The force experienced by the charge placed at the vertex A in a direction normal to BC is

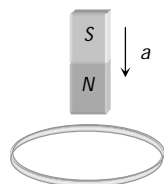
- (a) $Q^2 / (4\pi\epsilon_0 a^2)$
 (b) $-Q^2 / (4\pi\epsilon_0 a^2)$
 (c) Zero
 (d) $Q^2 / (2\pi\epsilon_0 a^2)$

Q.2 A thin semi-circular ring of radius r has a positive charge q distributed uniformly over it. The net field \vec{E} at the centre O is



- (a) $\frac{q}{2\pi^2 \epsilon_0 r^2} \hat{j}$
 (b) $\frac{q}{4\pi^2 \epsilon_0 r^2} \hat{j}$
 (c) $-\frac{q}{4\pi^2 \epsilon_0 r^2} \hat{j}$
 (d) $-\frac{q}{2\pi^2 \epsilon_0 r^2} \hat{j}$

Q.3 A metallic ring is attached with the wall of a room. When the north pole of a magnet is brought near to it, the induced current in the ring will be



- (a) First clockwise then anticlockwise
 (b) In clockwise direction
 (c) In anticlockwise direction
 (d) First anticlockwise then clockwise

ANSWER KEY

Q1.(a) Q2.(c) Q3.(b)

- Q.2** If the set A contains 5 elements and the set B contains 6 elements, then the number of one-one and onto mappings from A to B is
- (a) 720
(b) 120
(c) 0
(d) None

Q.3

$$f(x) = \begin{cases} \frac{1-\cos kx}{x \sin x}, & \text{if } x \neq 0 \\ \frac{1}{2}, & \text{if } x = 0 \end{cases}$$

is continuous at $x = 0$, then k is

- (a) 0
(b) 1
(c) 2
(d) 3

ANSWER KEY

Q1.(c) Q2.(d) Q3.(b)

CHEMISTRY

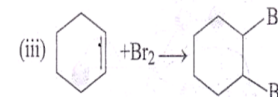
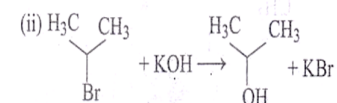
- Q.1** When the temperature rises, what happens to the peak of the curve in the Maxwell-Boltzmann distribution graph?
- (a) Shifts forward and upward
(b) Shifts forward and downward
(c) Shifts backwards and upward
(d) Shifts backwards and downward

- Q.2** A hydrogen gas electrode is made by dipping platinum wire in a solution of HCl and pH=10 and by passing hydrogen gas around the platinum wire at 1 atm pressure. The

oxidation potential of electrode would be

- (a) 0.059 V
(b) 0.59 V
(c) 0.118 V
(d) 0.18 V

- Q.3** For the following reactions:



Which of the following statement is correct?

- (a) (i) is elimination reaction (ii) is substitution and (iii) is addition reaction

(b) (i) is elimination, (ii) and (iii) are substitution reactions

(c) (i) is substitutions, (ii) and (iii) are addition reactions

(d) (i) and (ii) are elimination reactions and (iii) is addition reaction

ANSWER KEY

Q1.(b) Q2.(b) Q3.(a)

BIOLOGY

- Q.1** Read the following statements and find out the incorrect statement. A. In majority of organisms, male gamete is motile and female gamete is non-motile (stationary). B. In algae and fungi, both male and female

gametes are non-motile.

C. In seed plants, pollen grains are the carrier of male gametes and ovule has the egg.

D. In dioecious plants, pollination facilitates transfer of pollen grains to the stigma.

E. In monoecious animals, since male and female gametes are formed in different individuals, the organism must evolve special mechanism for gamete transfer.

(a) B and E

(b) A and D

(c) B and C

(d) C and E

- Q.2** Match the column I and II, and choose the

correct combination from the options given.

Characteristic	Crop/Variety
(i) Protein content and quality	(a) Maize
(ii) Vitamin content	(b) Carrots
(iii) Micronutrient content	(c) Spinach
(iv) Amino acid content	(d) Atlas-60

(a)(i) -d, (ii) - b, (iii) - c, (iv) -a,

(b) (i)- d, (ii)- b, (iii)- a, (iv)- c

(c) (i) - c, (ii)- a, (iii) - b, (iv) - d

(d) (i) - d, (ii), (iii)-c, (iv) - a.

- Q.3** Which of these equation show Hardy - Weinberg equilibrium

(a) $p^2 + 2pq + q^2 = 1$

(b) $p^3 + 3pq + q^3$

(c) $A^2 + 3 AB + B^2$

(d) None

ANSWER KEY

Q1.(a) Q2.(d) Q3.(a)

MATHEMATICS

- Q.1** If A and B are symmetric matrices of the same order, then $(AB' - BA')$ is a
 (a) skew symmetric matrix
 (b) null matrix
 (c) symmetric matrix
 (d) none of these