



PYRAMID

IIT-JEE | MEDICAL | FOUNDATION



TEST SERIES PAPER

STD : X [CBSE]

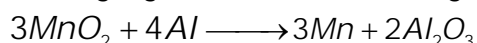
SUBJECT : SCIENCE

TIME : 2 HR.

MAX. MARKS : 40

SECTION - A (14 M)

01. Name the reducing agent in the following reaction :



State which is more reactive, Mn or Al and why?

02. The elements of the second period of the periodic table are given below :

Li, Be, B, C, N, O, F

(a) Give reason to explain why atomic radii decreases from Li to F

(b) Identify the most (i) Metallic and (ii) non-metallic element

03. What is the effect of DNA copying which is not perfectly accurate on the reproduction process?

04. Rajesh observed a path of greenish black powdery mass on the stale piece of bread.

(a) Name the organism responsible for this and its specific mode of sexual reproduction.

(b) Name its vegetative and reproductive parts.

05. "The sex of the children is determined by what they inherit from their father and not their mother" Justify.

OR

Describe briefly four way in which individuals with a particular trait may increase in a population.

'You should never let your fears prevent you from doing what you know is right.'

Aung San Suu Kyi - Burmese politician, diplomat and author (b.1945)

06. The given magnets is divided into three parts A, B, and C



Name the parts where the strength of the magnetic field is (i) maximum (ii) minimum

How will the density of magnetic field lines differ at these parts?

OR

- (a) Two magnets are lying side by side as shown below.
Draw magnetic field lines between poles P and Q



- (b) What does the degree of closeness of magnetic field lines near the poles signify?
07. What are biodegradable and non-biodegradable substances? Select two biodegradable substances? Select two biodegradable pollutants from the following. Agriculture waste, glass, plastic, sewage, DDT.

SECTION B (18 M)

08. The position of three elements A, B and C in the periodic table is shown below.

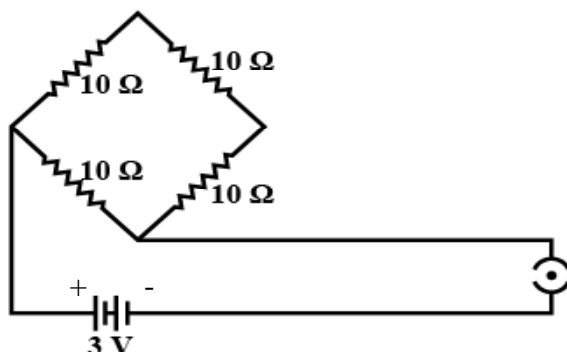
Group 16	Group 17
-	-
-	A
-	-
B	C

Giving reason's, explain

- (a) Element A is a non metal
 (b) Element B has a larger atomic size than element c.
 (c) Element C has a valency of 1.
09. (a) How many isomers are possible for the compound with the molecular formula C_4H_8 ?
 Draw the electron structure of branched chain isomer.
 (b) How will you prove that C_4H_8 and C_5H_{10} are Homologues?
10. A blue colour flower plant denoted by BB is cross bred with that of white colour flower plant denoted by bb.
 (a) State the colour of flower you would expect in their F_1 generation plants.
 (b) What must be the percentage of white flower plants in F_2 generation if flowers of F_1 plants are self pollinated?

(c) State the expected ratio of the genotypes BB and Bb in the F_2 progeny.

11. Find the current drawn from the battery by the network of four resistor, shown in the figure.



12. What is meant by electric current? Name and define its SI unit. In a conductor electrons are flowing from B to A. What is the direction of conventional current? Give justification of your answer.

A steady current of 1A flows through a conductor. Calculate the number of electrons that flows through any section of the conductor in 1 second.
(Charge on electron 1.6×10^{-19} Coulomb)

13. Gas A, found in the upper layers of the atmosphere, is a deadly poison but is essential for all living being. The amount of this gas started detecting sharply in the 1990's.

(a) Identify Gas A. How is it formed at higher levels of the atmosphere?

(b) Why is it essential for all living beings?
State the cause for the depletion of this gas?

SECTION - C (8 M)

This section has 02 case-base questions (14 and 15) each case is followed by 03 sub questions. (a, b and c). Part a and b are compulsory. However an internal choice has been provided in part C.

14. If we cross pure-bred tall (dominant) pea plant with pure bred dwarf (recessive) pea plant we will get pea plant of F_1 generation. If we now self-cross the pea plant of F_2 generation, then we obtain pea plants of F_2 generation.

(a) What do the plants of F_2 generation look like? [01]

(b) state the ratio of tall plants to dwarf plants in F_2 generation [01]

(c) state the types of plants not found in F_2 generation but appeared in F_2 generation mentioning the reason for the same? [02]

OR

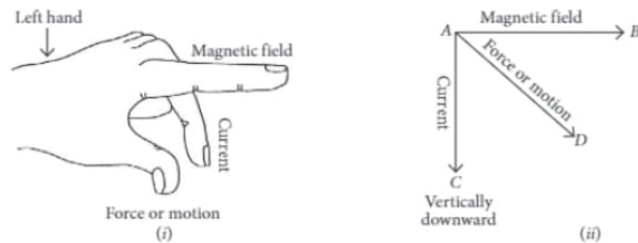
Q.14 Read the following and answer any four questions from I (i) to I (v).

Sex determination is the method by which distinction between males and females is established in a species. The sex of an individual is determined by specific chromosomes. These chromosomes are called sex chromosomes or Ilosomes. X and Y chromosomes are called sex chromosomes. The normal chromosomes other than the sex chromosomes of an Individual are known as autosomes.

- (i) In XX-XO type of sex determination
- (a) females produce two different types of gametes
 - (b) males produce two different types of gametes
 - (c) females produce gametes with Y chromosome
 - (d) males produce gametes with Y chromosome.
- (i) A couple has six daughters. What is the possibility of their having a girl next time?
- (a) 10 % (b) 50 % (c) 90 % (d) 100 %
- (iii) Number of autosomes present in liver cells of a human female is
- (a) 22 autosomes (b) 22 pairs
 - (c) 23 autosomes (d) 23 pairs.
- (iv) XX-XO type of sex determination and XX-XY type of sex determination are the examples of
- (a) male heterogamety (b) female heterogamety
 - (c) male homogamety (d) both (b) and (c).
- (v) Select the incorrect statement.
- (a) In male grasshoppers, 50% of sperms have no sex chromosome.
 - (b) Female fruitfly is heterogametic.
 - (c) Human male produces two types of sperms 50% having X chromosomes and 50% having Y chromosomes.
 - (d) In turtle, sex determination is regulated by environmental factors.

15. Read the following and answer any four questions from 3(i) to 3(v).

Andre Marie Ampere suggested that a magnet must exert an equal and opposite force on a current carrying conductor, which was experimentally found to be true. But we know that current is due to charges in motion. Thus, it is clear that a charge moving in a magnetic field experience a force, except when it is moving in a direction parallel to it. If the direction of motion is perpendicular to the direction of magnetic field, the magnitude of force experienced depends on the charge, velocity (v), strength of magnetic field (B), and sine of the angle between v and B . Direction of magnetic force is given by Fleming's left hand rule.

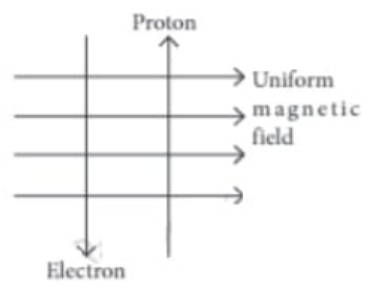


- (i) If an electron is travelling horizontally towards east. A magnetic field in vertically downward direction exerts a force on the electron along
 - (a) east
 - (b) west
 - (c) north
 - (d) south.

- (ii) If a charged particle is moving along a magnetic field line. The magnetic force on the particle is
 - (a) along its velocity
 - (b) opposite to its velocity
 - (c) perpendicular to its velocity
 - (d) zero.

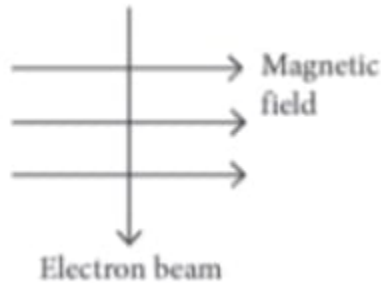
- (iii) A magnetic field exerts no force on
 - (a) a stationary electric charge
 - (b) a magnet
 - (c) an electric charge moving perpendicular to its direction
 - (d) an unmagnetised iron bar.

- (iv) A uniform magnetic field exists in the plane of paper pointing from left to right as shown in figure an electron and a proton move as shown. The electron and the proton experience



- (a) forces both pointing into the plane of paper
- (b) force both pointing out of the plane of paper
- (c) forces pointing into the plane paper and out of the plane of paper, respectively
- (d) force pointing opposite and along the direction of the uniform magnetic field respectively.

(v) An electron beam enters a magnetic field at right angles to it as shown In the figure. The direction of force acting on the electron beam will be



- (a) to the left (b) to the right (c) Into the page (d) out of the page.