

# SCIENCE

## REVISION and MODEL QUESTIONS

68) What is gene?

**Ans:** Gene is the unit of inheritance. It is the part of chromosome which controls the appearance of a set of hereditary characteristics.

69) Write the formula and IUPAC name of aldehyde containing four carbon atoms.

**Ans:**  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$

IUPAC name is Butanal

70) Write the harmful effects of using plastic bags on the environment. Suggest alternatives to plastic bags.

**Ans:** Harmful effects of using plastic bags:

- Plastic is non-biodegradable so it will remain as such and pollute the environment.
- Burning of plastic bags produces toxic gases.
- Plastic bags can block the drainage system.
- Discarded plastic bags when eaten by cows and other stray animals can block their alimentary canal and cause harm to them.
- Plastic bags when thrown in the water bodies, can cause water pollution as these do not decompose.

**Alternatives to plastic bags.** Use paper or homemade cloth bags to carry goods.

71) Differentiate between biodegradable and non-biodegradable substances with the help of one example each. List two changes in habit that people must adopt to dispose non-biodegradable waste, for saving the environment.

**Ans:** Difference between biodegradable substances and non-biodegradable substances.

Biodegradable waste	Non-biodegradable waste
(i) Wastes which can be broken down into non-poisonous substances in nature in due course of time by the action of micro-organisms are called bio-degradable wastes.	(i) Wastes which cannot be broken down into non-poisonous substances in nature are called non-biodegradable wastes.
(ii) Sewage, peels of fruits and vegetables, etc.	(ii) Plastic, glass, etc.

**Habits for disposing non-biodegradable waste:**

- Disposal of wastes after separating them into biodegradable and non-biodegradable wastes in separate dustbins and treating wastes properly before dumping in landfills.
- Encourage the use of gunny bags, jute bags and paper bags in place of polythene/plastic bags.
- Recycle the plastic and glass objects after use.

72) Let the resistance of an electrical component remain constant while the potential difference across the two ends of the component decreases to half of its former value. What change will occur in the current through it?

**Ans:-** The change in the current flowing through the electrical component can be determined by Ohm's Law.

According to Ohm's Law, the current is given by

$$I = V/R$$

Now, the potential difference is reduced to half keeping the resistance constant,

Let the new voltage be  $V' = V/2$

Let the new resistance be  $R' = R$  and

the new amount of current be  $I'$ .

The change in the current can be determined using Ohm's law as follows:

$$I' = \frac{V'}{R'} = \frac{\left(\frac{V}{2}\right)}{R} = \frac{1V}{2R} = \frac{1}{2}$$

Therefore, the current flowing the electrical component is reduced by half.

73) Which component of white light deviates (a) the least and (b) the most while passing through a glass prism? State the reason of this difference.

**Ans:** (a) Red colour deviates the least.

(b) Violet colour deviates the most.

**Reason:**

(i) Speed of different colours in a refracting medium are different.

(ii) Refractive index is different for different colour as  $n = \frac{c}{v}$ .

(iii) Refractive index is maximum for violet colour and least for red colour as violet colour has minimum speed while red has maximum speed.

(iv) Deviation varies directly to the refractive index.

Therefore, each colour deviates through different angles on passing through a glass prism

74) Explain the Terms:

**Monohybrid cross, Dihybrid cross, monohybrid ratio and Dihybrid ratio.**

**Ans:- Monohybrid cross:** Monohybrid cross which is made to study the inheritance of a single pair of genes or factors of a character.

**Dihybrid Cross:** It is a cross which is made to study the inheritance of two pairs of genes or two characters.

**Monohybrid ratio:** It is the ratio which is obtained in the F<sub>2</sub> generation when a monohybrid cross is made. It is usually 3:1 (phenotypic) or 1:2: 1 (genotypic ratio).

**Dihybrid ratio:** It is the ratio which is obtained in the F<sub>2</sub> generation when a dihybrid cross is studied. It is usually 9 : 3 : 3 : 1 (phenotypic ratio).