

Model set 7

Group B

1. What is meant by “classifying” in scientific learning process?

Classifying means grouping objects or information based on their similarities and differences.

2. What is meant by GPS technology?

GPS (Global Positioning System) technology is used to find the exact location of a place using satellites.

3. How is demodulation done?

Demodulation is done by separating the original message signal from the modulated carrier wave.

4. What is value of acceleration due to gravity at the centre of the earth?

The value of acceleration due to gravity at the centre of the earth is **zero (0 m/s²)**.

5. Write down the relation between frequency and time period.

Frequency is the reciprocal of time period.

$$f = 1/T.$$

6. Write one difference between potential difference and electromotive force.

Potential difference is the energy used between two points in a circuit, whereas electromotive force (emf) is the total energy supplied by a source.

7. Where is hydrogen gas found in nature?

Hydrogen gas is found in water and in the atmosphere in small amounts.

8. We should avoid food items containing mercury. Justify it.

Mercury is poisonous and can damage the brain and nervous system.

9. Why is the increasing use of insecticides harmful? Write.

Increasing use of insecticides is harmful because it pollutes the environment and kills useful insects.

Group C

10. Mention the importance of average in any two points.

The importance of average in any two points are given as:

1. Average helps to summarize a large amount of data into a single value.
2. It helps in comparing different groups or data easily.

11. What is meant by AM and FM?

AM (Amplitude Modulation): Modulation in which the amplitude of the carrier wave is changed according to the message signal.

FM (Frequency Modulation): Modulation in which the frequency of the carrier wave is changed according to the message signal.

12. Write down utility of Fax and Email.

- **Fax:** It is used to send printed documents through telephone lines.
- **Email:** It is used to send messages and files quickly through the internet.

13. Define binomial system of nomenclature with one example.

The **binomial system of nomenclature** is the method of naming organisms using two scientific names: **genus** and **species**.

Example:

Homo sapiens (Human)

14. Describe the structure of gills of mushroom with necessary diagram in brief.

Gills of mushroom are thin, plate-like structures present under the cap (pileus). They contain spores which help in reproduction.

(Make diagram from book)

15. Write any two differences between Lamarck's theory and Darwin's theory.

Lamarck's Theory

Lamarck stated that organs develop by **use and disuse**.

Lamarck believed that **acquired characters are inherited** by offspring.

Darwin's Theory

Darwin stated that evolution occurs by **natural selection**.

Darwin believed that only **useful natural variations are inherited** by offspring.

16. Write any two utilities of plant growth hormones.

- They promote growth of plants.
- They help in flowering and fruit formation.

17. Write the definition of speed and acceleration.

- **Speed:** It is distance travelled per unit time.
- **Acceleration:** It is Rate of change of velocity per unit time.

18. For the equation of motion in a straight line with initial velocity(u), time(t), acceleration(a) and displacement(s) related to equation. Prove that $s = ut + \frac{1}{2}at^2$

(Check in another pdf where numericals and such questions are solved)

19. The speed of sound in a medium is 5100m/s. If the wavelength of the sound is 15.5m, Calculate the frequency of sound.

(Another pdf)

20. All stars donot have same colour, Why?

Stars have different colours because they have different surface temperatures. Hot stars appear blue while cooler stars appear red.

21. How is potassium chloride formed by the combination of potassium and chlorine?

Describe with figure.

Potassium loses one electron and chlorine gains one electron to form ionic bond.

22. Give one example of each exothermic reaction and endothermic reaction.

- **Exothermic reaction:**
Burning of methane
 $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O} + \text{Heat}$
- **Endothermic reaction:**
Photosynthesis in plants.

23. Mention any two precautions that should be taken while preparing nitrogen gas in the laboratory.

- Apparatus should be airtight to prevent leakage of gas.
- Impurities should be removed before collecting nitrogen gas.

Group D

24. Write short notes with figure.

A) Pavement epithelium

Pavement epithelium is a thin layer of flat, scale-like cells that form a smooth lining. These cells fit closely together and allow easy diffusion of substances.

Location:

- Lining of alveoli of lungs
- Inner lining of blood vessels

Functions:

1. Helps in diffusion of gases.
2. Protects underlying tissues.

B) Nervous Tissue

Nervous tissue is made up of specialized cells called **neurons** that receive and transmit impulses in the body.

Location:

- Brain
- Spinal cord
- Nerves

Functions:

1. Carries messages in the form of nerve impulses.
2. Controls body activities

25. How is hydroelectricity generated? Explain with figure.

Hydroelectricity is generated by using the energy of falling water.

Steps:

1. Water is stored in a dam at height.
2. Water flows through pipes (penstock).
3. Flowing water rotates the turbine.
4. Turbine runs generator to produce electricity.

26. How is depth of a sea calculated by utilizing reflection of sound? Explain with figure.

Depth of sea is measured using **SONAR**. Sound waves are sent to the sea floor and reflected back. The time taken is used to calculate depth.

Formula used:

$$\text{Depth} = (\text{Velocity} \times \text{Time}) / 2$$

27. Write any two differences between natural gas and biogas. What is meant by radioactive elements?

Write with examples.

Natural Gas

Natural gas is found naturally underground.

Natural gas mainly consists of methane along with other gases.

Biogas

Biogas is produced from the decomposition of organic waste.

Biogas is produced in special structures called biogas plants.

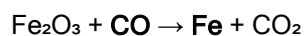
Radioactive elements are elements that emit harmful radiations spontaneously.

Examples:

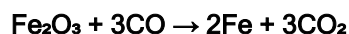
- Uranium (U)
- Radium (Ra)

28. Complete the given chemical equations and balance them.

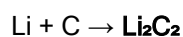
1.



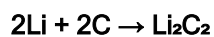
Balanced equation:



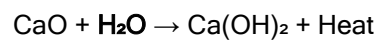
2.



Balanced:

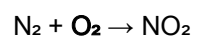


3.



(Balanced already)

4.



Balanced equation:

