

GENERAL INSTRUCTIONS

Attempt all the questions and follow the instructions given in each question.

Q. No. 1 is MCQs type, choose the correct option.

Q. No. 2 are Very Short Answer Type Questions, carry one mark each.

Q. No. 3 to Q. No. 9 are Short Answer Type Questions-I, carry 2 marks each.

Q. No. 10 to Q. No. 19 are also Short Answer Type Questions-II, carry 3 marks each.

Q. No. 20 to Q. No. 23 are Long Answer Type Questions, carry 5 marks each

Multiple Choice Type Questions

[1 mark each]

1. Choose the correct options :

[1 x 1 = 10]

- (i) Two objects repel each other. This repulsion could be due to
(a) frictional force only.
(b) electrostatic force only.
(c) magnetic force only.
(d) either a magnetic or an electrostatic force.
- (ii) If we apply oil on door hinges/ the friction will:
(a) increase
(b) decrease
(b) disappear altogether
(d) will remain unchanged
- (iii) The loudness of sound depends on:
(a) its amplitude
(b) its frequency
(c) its time period
(d) its speed.
- (iv) Which of the following metals is used in electroplating to make objects appear shining?
(a) iron
(b) copper
(c) chromium
(d) aluminium

- (v) An electroscope is a device which is used to find an object is
(a) charged
(b) magnetic
(c) free of cracks
(d) hot
- (vi) Part of the eye which controls the light entering is called:
(a) Iris
(b) Lens
(c) Cornea
(d) Retina
- (vii) Ursa Major is not known as:
(a) Big Dipper
(b) Great Bear
(c) Saptarashi
(d) Orion
- (viii) Process of separating grain seeds from the chaff is called
(a) threshing
(b) harvesting
(c) weeding
(d) sowing
- (ix) Viruses reproduce only inside the cells of:
(a) Host organism
(b) Plants
(c) Only surface of microbes
(d) Animals
- (x) Which is a thermosetting plastic?
(a) Melamine
(b) PVC
(b) Polythene
(d) Nylon

Very Short Answer Type Questions

[1 mark each]

2. (i) Can coal, petroleum and natural gas be prepared in the laboratory from dead organisms? [1]
- (ii) What do you mean by combustion? [1]
- (iii) Why is it important to conserve forests? [1]
- (iv) Name the cell in human body that receives and transfers messages. [1]

(v) Name any two non-contact forces. [1]

(vi) How does the amplitude affect the loudness of voice? [1]

Short Answer Type Questions-I

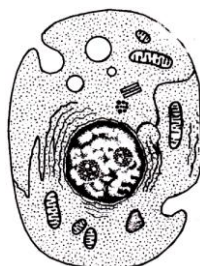
[2 mark each]

3. What are the uses of plastic in health care industry? [2]
4. Give reason : [2]
Iron nails are placed in copper sulphate solution. Write word equation of the reaction involved.
5. Compare between LPG and wood as fuel. [2]
6. Explain how CO_2 is able to control fibres? [2]
7. In an experiment, 4.5 kg of a fuel was completely burnt. The heat produced was measured to be 180,000 kJ. Calculate the calorific value of the fuel. [2]
8. What do you understand by Endemic species? Name two endemic flora and fauna. [2]
9. We should avoid taking medicines/drugs unless prescribed by a doctor. Give reasons. [2]

Short Answer Type Questions-II

[3 mark each]

10. Why is it easy to drag a mat when nobody is sitting on it but difficult when somebody is sitting on it? [3]
11. Cartilage is present in the joints of our body which helps in their smooth movement. With advancing age, this cartilage wears off. How would this affect the movement of joints? [3]
12. When the cutting edge of a knife, is put against a fast rotating stone to sharpen it, sparks are seen to fly. Explain the reason. [3]
13. Give reason: [3]
(i) LPG is a better domestic fuel than wood.
(ii) Differentiate between Flora and Fauna.
14. Observe the following diagram :



Answer the following questions:

[1+2]

(i) Does it represent a plant cell or an animal cell?

(ii) Does it represent a prokaryotic cell or an eukaryotic cell?

15. Give reason:

Powder is sprinkled on the carrom board before playing.

[3]

16. How does housefly make us sick?

[3]

17. A more reactive metal displaces the less reactive metal from its salt solution. What do you mean by this reaction?

[3]

18. Draw a sketch of a prokaryotic cell.

[3]

19. Draw the life cycle of Frog.

[3]

Long Answer Type Questions

[5 mark each]

20. How does air get polluted? Explain.

[5]

21. What is the difference between revolution and rotation?

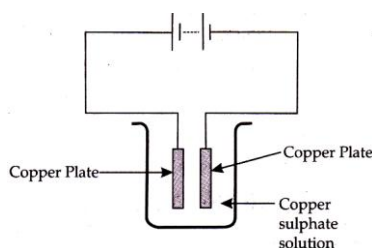
[5]

22. In the circuit as given in Fig., Boojho observed that copper is deposited on the electrode connected to the negative terminal of the battery. Paheli tried to repeat the same experiment but she could find only one copper plate. Therefore, she took a carbon rod as negative electrode. Will copper be still deposited on the carbon rod? Explain your answer.

[5]

23. Is deforestation associated with global warming? Explain.

[5]



Solutions

Multiple Choice Type Questions

[1 mark each]

- 1.
- (i) (d) either a magnetic or an electrostatic force [1]
 - (ii) (b) decrease [1]
 - (iii) (a) its amplitude [1]
 - (iv) (c) Chromium [1]
 - (v) (a) charged [1]
 - (vi) (a) Iris [1]
 - (vii) (d) Orion [1]
 - (viii) (a) threshing [1]
 - (ix) (a) Host organism [1]
 - (x) (a) Melamine [1]

Very Short Answer Type Questions

[1 mark each]

- 2.
- (i) No, their formation is a very slow Process and conditions for their formation cannot be created in the laboratory. [1]
 - (ii) A chemical process in which a substance burns in the presence of oxygen to release heat is called combustion. [1]
 - (iii) Forest conservation maintains the balance in nature/it acts as carbon activators absorbing CO_2 and keeps global warming away. [1]
 - (iv) Nerve cell.
 - (v) Non-contact forces: [1]
 - (a) Gravitational force
 - (b) Magnetic force.
 - (vi) Higher is the amplitude, louder is the voice. [1]

Short Answer Type Questions-I

[2 mark each]

3. Plastics find extensive use in the healthcare industry. Some examples of their uses are the packaging of tablets/ threads used for stitching wounds, syringes, doctor's gloves and a number of medical instruments. [2]

4. When iron nails are placed in copper sulphate solution, displacement reaction takes place in which iron displaces copper as iron is more reactive than copper. [1]



5. Differences between LPG and Wood are as follow

	LPG		Wood
(i)	It is a gaseous fuel.	(i)	It is a solid fuel.
(ii)	It does not produce smoke.	(ii)	It produces smoke.
(iii)	It is easily stored in cylinders.	(iii)	It requires more space to store.
(iv)	It does not cause any pollution.	(iv)	It causes much pollution.
(v)	Its calorific value is high. i.e., 55000 Kj/Kg.	(v)	Its calorific value is low. i.e., 17000 Kj/Kg-22000 Kj/Kg

(Any four) [2]

6. Actually, CO_2 cuts off supply of air to the combustible substance or it brings down the temperature of the combustible substance below its ignition temperature by forming a layer on that substance due to which it stops the fire. [2]

7. Given : Mass of fuel = 4.5 kg [2]

The heat produced by combustion of 4.5 kg of fuel
= 1, 80, 000 kJ

So, the calorific value of fuel = Heat produced by combustion of 1 kg of fuel [2]

$$= \frac{1,80,000}{4.5}$$

$$= 40,000 \text{ kJ / kg.}$$

8. Endemic species are those species of plants and animals that are found exclusively in a particular area. A particular type of animal or plant may be endemic to a zone, a state or a country e.g., Sal and wild mango are endemic flora. Bison and the Indian giant squirrel are endemic fauna of the Pachmarhi Biosphere Reserve. [2]

9. We should avoid taking medicine/drugs unless prescribed by a doctor because :
(i) Several medicines have adverse side effects and have specific dosage levels which if not followed may harm the body.

(ii) Drugs can be addictive too and can ruin our health and happiness. [2]

Short Answer Type Questions-II

[3 marks each]

- 10.** We know that friction is caused by the interlocking of the irregularities in the two surfaces. It is obvious that the force of friction will increase if the two surfaces are pressed harder. So it is easy to drag a mat when nobody is sitting on but difficult when someone is sitting on it. **[3]**
- 11.** Cartilage is present in the joints of our body reduces friction during movement of joints. But on wearing off of this cartilage, the force of friction increases due to which the smoothness of movement decreases and one feels the joint pain. **[3]**
- 12.** Due to the friction between knife and stone, the temperature of the knife and hence stone increases and it increases to such a level that the sparks are produced which can be seen while sharpening it. **[3]**
- 13.** (i) Wood has less calorific value (17000-22000 kJ/kg) than the calorific value of LPG (55000 kJ/kg). It means that on combustion of 1 kg of LPG, 55000 kJ heat is generated while combustion of 1 kg of wood produces about 20000 kJ of heat only. So LPG is better domestic fuel than wood. Also LPG does not leave any residue after combustion which wood does. **[1 ½]**

(ii)

S. No.	Flora	Fauna
(a)	It is the variety of plants in a particular area e.g., sal, teak, mango etc. from the flora of Pachmarhi biosphere reserve	It is the variety of animals in a particular area. e.g., leopard, wolf etc. from the fauna of Pachmarhi biosphere reserve.

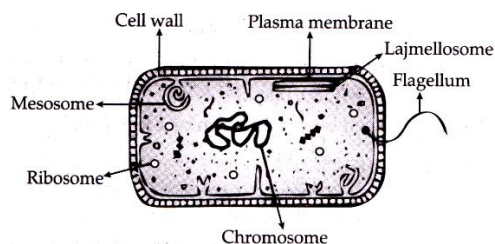
[1 ½]

- 14.** (i) The above diagram represents an animal cell because cell is bound by cell membrane and cell wall is absent, **[1 ½]**
(ii) The above diagram represents an eukaryotic cell as it has a well-organized nucleus and other cell organelles in it. **[1 ½]**
- 15.** We sprinkle powder on carrom board to make the surface of the board smooth. This reduces the friction between the surface of the carrom board, the striker and the coins. As a result/ the coins and the striker can move easily on the carrom board. **[3]**
- 16.** Housefly is a carrier of disease-causing microbes. The flies sit on the garbage and animal excreta. Pathogens stick to their bodies. When these flies sit on uncovered food they may transfer these pathogens, whoever eats this contaminated food, is likely to get sick. **[3]**

17. In a chemical reaction, when a more reactive metal displaces the less reactive metal from its salt solution, it is called displacement reaction, e.g., zinc can displace copper from its copper sulphate solution as zinc is more reactive than copper.

Less reactive metal cannot displace the more reactive metal from its salt solution, e.g., copper cannot displace zinc from its solution zinc sulphate as copper is less reactive than zinc. [3]

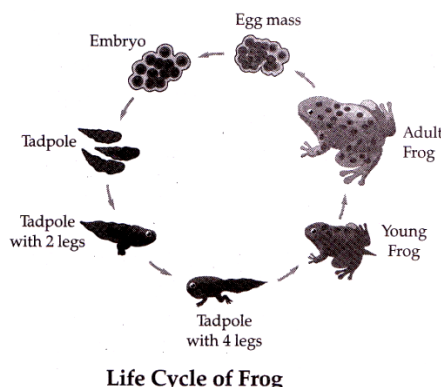
18.



A generalised prokaryotic cell of a bacterium

[3]

19.



Life Cycle of Frog

Long Answer Type Questions

[5 mark each]

20. Air gets polluted by many reasons. Few of them are as follows :
- (i) Vehicles produce high level of pollutants like carbon monoxide, carbon dioxide, nitrogen oxide, smoke etc. These are very poisonous gases. Burning of fuel from vehicles also produces pollution. [1]
 - (ii) Many industries are also responsible for causing air pollution. Petroleum refineries release polluted gases such as sulphur dioxide, nitrogen dioxide etc. They cause respiratory problems, including lung damage. [1]
 - (iii) Other kinds of pollutants are CFCs which are largely used in refrigerators, air conditioners and aerosol sprays, deplete the ozone layer. It protects us from ultraviolet rays of the Sun. [1]
 - (iv) Some human activities like forest fire, burning of fire wood, cow dung cakes, burning of chaff etc.

Cause air pollution.

[1]

(v) Some natural phenomenon like fast dust storms, volcanic eruption produce smoke and dust particles.

[1]

21. Difference between revolution and rotation :

[5]

S. No.	Revolution	Rotation
(i)	Planets in our solar system revolve around the sun in fixed path. This is called as revolution. The time taken by a planet to complete one revolution is called its period of revolution	A planet rotates on its own axis like a top. This is called as rotation. The time taken by a planet to complete one rotation is called its period of revolution.
(ii)	The period of revolution increases as the distance of the planet increases from the	It is always fixed.

22. Copper will not be deposited on the carbon rod because carbon rod is a poor conductor of electricity. For electroplating, the circuit must be completed and that can be completed only by using the conducting material. Instead of carbon rod, it should be any metal, then only it can be electroplated.

[5]

23. Trees use carbon dioxide gas from the atmosphere for the process of food making 'called Photosynthesis'. When a lot of trees are cut down during deforestation, then lesser number of trees will be left. The lesser number of trees will use up less carbon dioxide due to which the amount of carbon dioxide in the atmosphere will increase. In this way, deforestation increases the level of carbon dioxide in the atmosphere. Carbon dioxide gas traps the sun's heat rays reflected by the earth (causing greenhouse effect). Trapping of heat rays by carbon dioxide increases the temperature of earth's atmosphere. This will lead to global warming. The gradual increase in the overall temperature of earth's atmosphere due to greenhouse effect caused by the increased level of carbon dioxide in the atmosphere is called global warming.

[5]