

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 option :

[1×10=10]

- (i) Which of the following is not likely to cause Tsunami?
(a) A major nuclear explosion under sea
(b) Earthquake
(c) Volcanic eruption
(d) Lightning
- (ii) Which of the following statements is correct regarding rods and cones in the human eye?
(a) Cones are sensitive to dim light
(b) Cones are sensitive to bright light
(c) Rods are sensitive to bright light
(d) Rods can sense colour.
- (iii) Which of the following is NOT a planet of the sun?
(a) Sirius (b) Mercury
(c) Saturn (d) Earth
- (vi) Which of the following is not a source of air pollution?
(a) automobile exhaust
(b) burning of firewood
(c) Wind mill
(d) power plant
- (v) Which of the following is not a traditional method of irrigation?
(a) Moat (b) Chain pump
(c) Drip system (d) Rehat
- (vi) Which of the following is an antibiotic?
(a) Sodium bicarbonate (b) Streptomycin
(c) Alcohol (d) Yeast

- (vii) Typhoid is a _____ disease.
 (a) protozoan (b) viral
 (c) bacterial (d) fungal
- (viii) The most suitable material for the preparation of handles of cooking utensils is
 (a) Polythene (b) PVC
 (c) Nylon (d) Bakelite
- (ix) Which of the following can be beaten into their sheets?
 (a) Zinc (b) Phosphorus
 (c) Sulphur (d) Oxygen
- (x) PCRA stands for
 (a) Public Conservation Research Association
 (b) Petroleum Conservation Research Association
 (c) Public Council of Research Association
 (d) Partial Counting of Remaining Amendment

Very Short Answer Type Questions

[1 mark each]

2. (i) What is Teflon? [1]
- (ii) Why is phosphorus stored in water? [1]
- (iii) Name the slow process which involves the conversion of dead vegetation into coal. [1]
- (iv) How can we say that fish exhibits external fertilisation? [1]
- (v) What are the interactions of poles of two magnets? [1]
- (vi) Astronauts in outer space have to use radios to communicate with one another. Why? [1]

Short Answer Type Questions-I

[2 mark each]

3. Why are vaccines so important for children? [2]
4. What are thermosetting plastics? Write two examples with their characteristics. [1+1]
5. Where is oil found in India? [2]
6. What do you understand by fuel efficiency? [2]
7. Why are wildlife sanctuaries important for conservation of plants and animals? [2]
8. What is gene? What is its function? [1+1]
9. Explain Internal Fertilisation. [2]

Short Answer Type Questions-II

[3 mark each]

10. What is IFV? [3]
11. A ball rolling along the ground gradually slows down and finally comes to rest. Why does this happen? What is the effect of this force? [3]
12. Explain why :
A pencil will write on paper but not on glass. [3]
13. Fill in the blanks with most appropriate answer: [1+1+1]
- (a) The fish like baby of a frog _____.
(b) The animal that lay thousands of eggs _____.
(c) The stage of the embryo in which all the body parts can be identified_____.
14. What is the importance of using manure and fertilizers as an agricultural practice? [3]
15. Classify the following into friendly and harmful micro-organisms :
Yeast, malaria parasite, Lactobacillus, bread mould, Rhizobium, *Bacillus anthracis*. [3]
16. Give few examples to show that plastics are non-corrosive in nature. [3]
17. Mercury is the only metal found in liquid state. It is largely used in thermometers to measure the temperature. But mercury is a very dangerous metal as its density is very high. What two precautions would you take while handling the equipment containing mercury? [3]
18. Write three important uses of non-metals. [3]
19. What are the advantages of using CNG and LPG as fuels? [3]

Long Answer Type Questions

[5 mark each]

20. (a) Which part of the cell contains organelles? [1+3+1]
(b) State three differences between plant cell and animal cell.
(c) Where are chromosomes found in the cell?
21. Read the passage and answer the given question. Sarvesh noticed that during rainy season, the leaves of the plants in his school get burnt. His teacher told him that all this is due to acid rain. [2+2+1]
(a) What is acid rain?
(b) What are the harmful effects of acid rain.
(c) What efforts can you do to reduce this acid rain?
22. What are contact and non-contact forces? Explain briefly, with suitable examples. [5]
23. Write short notes on the following : [5]
(i) Cytoplasm (ii) Nucleus of a cell

Solutions

Multiple Choice Type Questions

[1 mark each]

- 1.
- | | | |
|--------|---|-----|
| (i) | (d) Lightning | [1] |
| (ii) | (b) Cones are sensitive to bright light | [1] |
| (iii) | (a) Sirius | [1] |
| (iv) | (c) Wind mill | [1] |
| (v) | (c) Drip system | [1] |
| (vi) | (b) Streptomycin | [1] |
| (vii) | (c) bacterial | [1] |
| (viii) | (d) Bakelite | [1] |
| (ix) | (a) Zine | [1] |
| (x) | (b) Petroleum Conservation Research Association | [1] |

Very Short Answer Type Questions

[1 mark each]

- 2.
- (i) Teflon is a special plastic on which oil and water do not stick. It is used for non-stick coating in cooking wares. [1]
- (ii) Phosphorus is a very reactive non-metal. It catches fire if exposed to air. So, it is stored in water to prevent it in contact with atmospheric oxygen. [1]
- (iii) Carbonization [1]
- (iv) Female fish lay eggs in water while male fish release their sperms in water. Sperms swim and reach the egg of fish, randomly due to water currents and thus external fertilisation occurs. [1]
- (v) (a) Like poles repel each other. [½ + ½]
(b) Unlike poles attract each other.
- (vi) In outer space, there are no gases to help transmit sound. To communicate with one another astronauts make use of electromagnetic waves such as radio waves, which can travel through vacuum. [1]

Short Answer Type Questions-I

[2 mark each]

3. By introducing vaccine in body, the body fights and kills the bacteria by producing suitable antibodies.
- The antibodies remain in the body and the child is protected from the disease causing microbes. [2]

4. There are some plastics which when moulded once, cannot be softened by heating. These are called thermosetting plastics, e.g., Bakelite and melamine.
Bakelite: It is a poor conductor of heat and light. [1+1]
Melamine: It is fire resistant.
5. Oil is found in India in Assam, Gujrat and Mumbai High and in the river basin of Godavari and Krishna. [2]
6. Fuel efficiency is determined by its calorific value which is the amount of heat energy produced on the complete combustion of 1 kg of a fuel. The calorific value of a fuel is expressed in kJ/kg. [2]
7. In a wildlife sanctuary, killing and capturing of wild animals are strictly prohibited. It does not allow any human activity which disturbs the wild animals in their habitat. So, in these areas, animals live in natural environment, protected from people. This is the reason that sanctuaries are important. [2]
8. Gene is a unit of inheritance in living organisms. It controls the transfer of hereditary characteristics from parents to off springs. [1+1]
9. Fertilisation which takes place inside the female body is called internal fertilisation. Internal fertilisation occurs in many animals including cows, dogs and hens. [2]

Short Answer Type Questions-II

[3 marks each]

10. IVF or In-vitro fertilisation. In such cases, doctor collects freshly released egg and sperms and keep them together for a few hours for fertilisation. When fertilisation occurs, the zygote is formed and allowed to develop for about a week and then it is placed in the mother's uterus. Babies produced by this technique is called test tube babies. [3]
11. The force responsible for changing the state of motion of ball is the force of friction. The ball will come to rest position. This force causes wear and tear of the objects in motion. [3]
12. Due to friction, a pencil writes on paper but as there is smoothness on the surface of glass, a pencil cannot write on glass. [3]
13. (a) Tadpole [1]
 (b) Fish/Lice [1]
 (c) Foetus [1]
14. Using manure and fertilizers as an agriculture practice is important as continuous growth of crops makes the soil poorer in certain nutrients. These both are added to the soil in the form of nutrients for the healthy growth of plants. Manure replenishes the soil with nutrients and also improves water retaining capacity whereas fertilizers make soil rich in a particular nutrient. They also help farmers to get better yield of crops. [3]

15.

	Friendly micro-orgamsxns		Harmful micro- organisms
(i)	Yeast	(i)	Malarial Parasite
(ii)	<i>Lactobacillus</i>	(ii)	Bread mould
(iii)	Rhizobium	(iii)	<i>Bacillus anthracis</i>

[1+1+1]

16. Corrosion of a substance is the process of reaction with water or moisture of air and getting damaged. Following are the few examples:

(i) We use buckets and mugs made up of plastics in our bathrooms regularly, but they remain as it is for long time period.

(ii) Plastics do not decompose in atmosphere for long period.

(iii) Many health care products such as packaging of tablets, threads used for stitching wounds, remain in their original look for long time period.

[1+1+1]

17. Precautions while handling the equipments containing mercury are:

(i) Mercury, a liquid metal with high density, can corrode the skin if it drops over it. Hence, the vessel should be closed or tightly packed.

(ii) It should not be heated directly,

[1 ½ + 1 ½]

18. Important uses of non-metals :

(i) Non-metals are essential for our life as all living beings inhale oxygen and breathe out carbon dioxide during breathing.

(ii) They are used in fertilizers to enhance the growth of plants.

(iii) Non-metal is used in the purple coloured solution that is applied on wounds as an antiseptic.

(iv) Non-metals are used in crackers.

(Any three) [1+1+1]

19. CNG and LPG are very important fuels because it is easy to transport them through pipes. CNG (Compressed natural gas) and LPG (Liquefied Petroleum gas) are used for power generations and as non-polluting fuels. Its great advantages are that it can be used directly for burning in homes and factories.

[3]

Long Answer Type Questions

[5 mark each]

20. (a) Cytoplasm contains all the organelles of the cell. Organelles are the small structures present inside the cell which have their specific structure and specialised functions.

[1]

(b)

	Plant cell	Animal cell
(i)	Presence of cell wall.	Absence of cell wall.
(ii)	Large size vacuoles are present.	Small size vacuoles are present.
(iii)	Centrioles are absent.	Centrioles are present.
(iv)	Chloroplast (Plastid) is absent.	Chloroplast (Plastid) is present.

(Any three) [1+1+1]

(c) Chromosomes are the thread like structures found inside the nucleus; present in the cell.

[1]

21. (a) The gases such as sulphur dioxide (SO₂) and nitrogen dioxide (NO₂) react with water vapor in the atmosphere to form sulphuric acid and nitric acid and constitute the acid rain.

[2]

(b) The harmful effects of acid rain are as follows:

(Any two) [1+1]

(i) It harms the plant life; as leaves and other parts of the plant get burnt

(ii) It corrodes the marbles (CaCO_3) of the monuments; which results in its yellowing.

(iii) It affects the animal life also.

(c) (i) We can use cleaner fuels like LPG and CNG.

[1]

(ii) Chimneys should be well equipped with air niters.

[1]

22. Forces can be of two types :

(i) Contact forces.

(ii) Non-contact forces.

[1]

(i) **Contact forces:** The forces that come into play when two objects come in contact with each other.

(a) **Muscular force:** The force which is exerted due to action of muscles is known as the muscular force, e.g., running, bending, walking etc.

(b) **Frictional force:** The force responsible for changing the state of motion of an object. Equal and opposite forces are being exerted on an object when its surface comes in contact with other surface, e.g., a car or scooter comes to rest.

[2]

(ii) Non-contact forces: The forces that can be exerted from a distance without establishing a contact are called the non-contact forces.

(a) **Magnetic force:** Force exerted by a magnet on another magnet or magnetic substances like iron is called magnetic force, e.g., Car sticking to an electromagnet.

(b) **Electrostatic force:** Force exerted by a charged body on another charged body or uncharged body is called electrostatic force, e.g., If we rub a comb with hair and bring it near some small bits of paper, it attracts the bits of paper towards itself. This is electrostatic force.

(c) **Force of gravity:** The earth pulls every object towards its centre. The force exerted by the earth is called the force of gravity.

[2]

23. (i) **Cytoplasm:** It is a jelly-like substance, present between the cell membrane and the nucleus. It encloses all tiny structures called cell organelles that perform different functions. It also contains water, sugar, proteins, minerals etc.

[2 ½]

(ii) **Nucleus of a Cell:** It is a spherical component of cell commonly located in the centre of cell. It is covered by porous nuclear membrane and contains genetic material like RNA and DMA. It also contains thread-like structures called chromosomes, which carry genes. Nucleus controls various activities of cell.

[2 ½]