

## GENERAL INSTRUCTIONS

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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

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## Multiple Choice Type Questions

[1 mark each]

**1. Choose the correct option :**

- (i) Wild buffalo is an endangered species because
- (a) Its population is diminishing.
  - (b) It has become extinct.
  - (c) It is found exclusively in a particular area.
  - (d) Its poaching is strictly prohibited.
- (ii) The thread-like structures present in the nucleus are:
- (a) nucleolus
  - (b) genes
  - (c) chromosomes
  - (d) ribosomes
- (iii) After fertilisation, the resulting cell which gives rise to a new individual is the:
- (a) Embryo
  - (b) Ovum
  - (c) Foetus
  - (d) Zygote
- (iv) Structure present in the cell which is responsible for determination of the sex of a baby is:
- (a) Cytoplasm
  - (b) Cell membrane
  - (c) Nucleus
  - (d) Chromosomes

- (v) Adrenaline is produced by the:  
 (a) Pancreas  
 (b) Thyroid Gland  
 (c) Adrenal Gland  
 (d) All of these
- (vi) An object is vibrating at 50 Hertz. What is its time period?  
 (a) 0.02s  
 (b) 2s  
 (c) 0.2s  
 (d) 20.0s
- (vii) Which one of the following solutions will not conduct electricity?  
 (a) lemon juice  
 (b) Vinegar  
 (c) tap water  
 (d) Vegetable oil
- (viii) Major earthquakes are likely to occur in:  
 (a) North East India  
 (b) Rajasthan  
 (c) Rann of Kutch  
 (d) Orissa
- (ix) Which of the following is NOT a member of the solar system?  
 (a) An asteroid  
 (b) A satellite  
 (c) A constellation  
 (d) A comet
- (x) Sun appears to move from east to west around the earth. This means that earth rotates from:  
 (a) East to West  
 (b) North to South  
 (c) West to East  
 (d) West to North

### Very Short Answer Type Questions

[1 mark each]

2. (i) What happens to the air in the bicycle tube/ when it has a puncture? [1]
- (ii) What is the contact force? [1]
- (iii) Why does a matchstick catch fire when it is rubbed on a rough surface? [1]
- (iv) What is the hearing range of human ears? [1]

(v) What is distilled water? [1]

(vi) Name two destructive phenomena? [1]

### Short Answer Type Questions-I

[2 mark each]

3. Why is Seema suggested Reema to use LED instead of bulb in testing a tester through liquid having low electrical conductivity? [2]
4. Whenever we fall ill due to infection, the doctor gives us a tablet or injection to cure the disease. What are those tablets or injections and how the medicine cures us? [2]
5. Hydrochloric acid is taken in a test tube and a piece of zinc metal is put into it. The collected gas evolved in the test tube is tested by bringing it near the burning matchstick. [1+1]  
(a) Which is the gas evolved in the test tube after the reaction?  
(b) What happened to the burning matchstick when it is brought near to the mouth of the test tube.
6. Groundwater also gets polluted by sewage. How? [2]
7. What is the Sun? [2]
8. Which part of the eye gets affected if someone is suffering from cataract? How is it treated? [1+1]
9. If air and cloud are good conductors of electricity. Do you think lightning could occur? Explain. [2]

### Short Answer Type Questions-II

[3 mark each]

10. A chemical compound is produced by the method of electrolysis. Give an example. [3]
11. Two astronauts are floating close to each other in space. Can they talk to each other without using any special device? Give reasons. [3]
12. Fig. shows a man with a parachute. Name the force which is responsible for his downward motion. Will he come down with the same speed without the parachute? [3]



13. Match the Column A with the Column B :

[1+1+1]

	Column A		Column B
(a)	Protozoa	(1)	Nitrogen fixation
(b)	Rhizobium	(2)	Root nodules
(c)	Legume	(3)	Paramecium
		(4)	Curd formation

14. What is soil fertility? Mention some method by which soil fertility can be replenished.

[1+2]

15. Why are salt and edible oils also called preservatives? Name two chemicals that are used as common preservatives.

[1+2]

16. How do vaccines work?

[3]

17. Categorize the following materials into 'can be recycled' and 'cannot be recycled' :

[3]

Telephone instruments, toys, cooker handles, carry bags, ball point pens, plastic bowls, electric wire covering, plastic chairs and electrical switches.

18. Arrange the following wastes as biodegradable and non-biodegradable.

[3]

Peel of vegetables and fruits, leftover food stuff, paper, cotton cloth, wood, woollen clothes. Tin, aluminium and plastic bags.

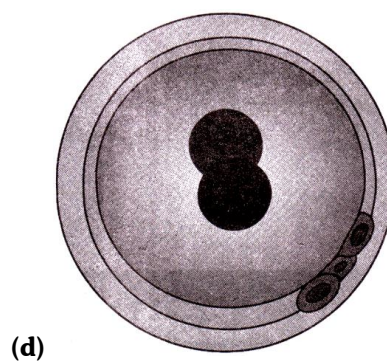
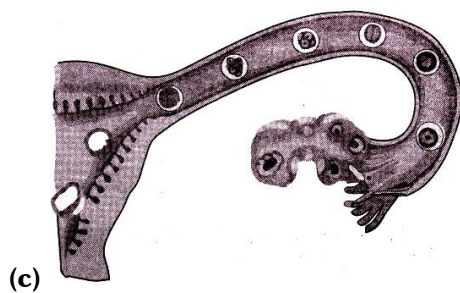
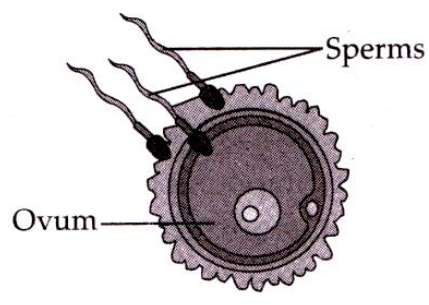
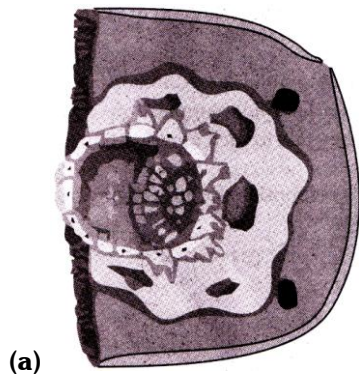
19. Explain, why fossil fuels are exhaustible natural resources.

[3]

## Long Answer Type Questions

[5 mark each]

20. Observe the following figures.



(i) Identify the stages (a) to (d) in figures during development of human baby.

[2+2+1]

(ii) Arrange the stages in correct sequence of development.

(iii) Explain the development that takes place in any one stage.

21. What is the difference between noise and music? Can music become noise sometimes?

[3+2]

22. Write the structure and function of human eye.

[5]

23. Suggest three measures to protect ourselves from lightning.

[5]

## Solutions

### Multiple Choice Type Questions

[1 mark each]

- 1.
- |        |                                    |     |
|--------|------------------------------------|-----|
| (i)    | (a) Its population is diminishing. | [1] |
| (ii)   | (b) genes                          | [1] |
| (iii)  | (d) Zygote                         | [1] |
| (iv)   | (c) Chromosomes                    | [1] |
| (v)    | (c) Adrenal Gland                  | [1] |
| (vi)   | (a) 0.02 s.                        | [1] |
| (vii)  | (d) Vegetable oil                  | [1] |
| (viii) | (d) Orissa                         | [1] |
| (ix)   | (a) a Constellation                | [1] |
| (x)    | (c) West to East                   | [1] |

### Very Short Answer Type Questions

[1 mark each]

- 2.
- |       |   |     |
|-------|---|-----|
| (i)   | Air exerts pressure on the walls of the tube. When it gets puncture, air of the tube comes out rapidly. | [1] |
| (ii)  | A force that appears due to physical contact of two objects is called contact force.                    | [1] |
| (iii) | Matchstick catches fire due to friction.  | [1] |
| (iv)  | Hearing range of human ears is 20 Hz to 20,000 Hz.  | [1] |
| (v)   | The water that does not contain salts is called distilled water.  | [1] |
| (vi)  | Lightning, earthquake.  | [1] |

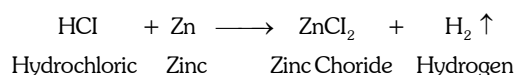
### Short Answer Type Questions-I

[2 mark each]

3. Seema suggested Reema to do so, because in liquids, the passage of electricity is not too much high to light up a bulb. An LED has availability to glow even if the current is low. That is why LED is used to test electrical conductivity in liquids.
- [2]

4. Those injections or tablets are called as antibiotics. The antibiotics are a group of medicine that are used to treat infections caused by some germs. They act against these infections and improve our immune system. They are also called as antibacterial or antimicrobial. [2]

5. (a) The reaction takes place is



The gas evolved is hydrogen gas  $\text{H}_2$ . [1]

(b) As we know that  $\text{H}_2$  is a combustible gas, so when the burning matchstick is brought near the mouth of the test tube containing hydrogen gas, it produces a pop up sound. [1]

6. Untreated or inadequately treated sewage is major source of groundwater pollution. Sewage contains food wastes, detergents, micro-organisms etc, which seep into the ground to pollute groundwater. [2]

7. The Sun is a star. It is the nearest star from us. It is continuously emitting huge amounts of heat and light. It is the source of almost all energies on the Earth. It is also a source of heat and light for all the planets. [2]

8. If people is suffering from cataract, the eye lens becomes clouded. Cataract is treated by replacing the opaque lens with the new artificial lens. [1 + 1]

9. No, there will be no lightning at all because all the charges collected at the clouds will continuously be transferred through air. [2]

## Short Answer Type Questions-II

[3 marks each]

10. Sodium hydroxide or caustic soda is produced by the electrolysis of an aqueous solution of sodium chloride. [3]
11. No, they cannot talk to each other without using any special device because there is no medium in space and sound needs medium to travel. [3]
12. The name of force responsible for the downward motion of the parachute is force of gravity. No, he will not come down with the same speed without the parachute, because the air friction will become less. [3]

- 13.

(a)	Protozoa	(3)	Paramecium
(b)	Rhizobium	(1)	Nitrogen fixation
(c)	Legume	(2)	Root nodules

14. The ability of soil to supply all the essential plant nutrients to a crop in adequate quantity is called soil fertility. Repeated growing of crops in the same soil removes various nutrient elements from the soil due to which the soil loses its fertility. [1]

The soil fertility can be replenished by the following methods:

(i) By keeping the field fallow for one or two seasons.

(ii) By putting manure and fertilizers in the soil.

(iii) By practising crop rotation.

(iv) By practising multiple cropping (Mixed cropping). [2]

15. Salt and edible oils are the common chemicals generally used to check the growth of micro-organisms. Sodium benzoate and metabisulphate are common preservatives. [1+2]

16. The body produces antibodies when a disease carrying microbe enters in it. The body also retains memory of this encounter to fight the microbe if it enters again. A vaccine consists of dead or weakened microbes which when introduced in a healthy body, produce suitable antibodies to fight and kill themselves. These antibodies remain in the body to protect it from disease causing microbes thus develop immunity. [3]

17. Most of the thermoplastic plastics can be recycled, so based on this fact the given materials are categorized as follows:

**Can be recycled:** Toys, carry bags, ball point pens, plastic bowls, electric wire covering. [1 ½]

**Cannot be recycled:** Telephone instruments, cooker handles, plastic chairs, and electrical switches. [1 ½]

18. **Biodegradable wastes:** Peel of vegetables and fruits, leftover food stuff, paper, cotton cloth, wood and woollen clothes.

**Non-biodegradable wastes:** Tin, aluminum, plastic bags. [1 ½+1 ½]

19. Fossil fuels are exhaustible natural resources because they are made by the decomposition of the dead remains of living organisms. These are present in limited quantity beneath the earth. Thus, it will come to end by human usage. [3]

## Long Answer Type Questions

[5 mark each]

20. (i) The given figures showing stages during development of embryo are identified as :

(a) Embedding of the embryo in the uterus (implantation) [2]

(b) Fertilisation (fusion of egg and sperm)

(c) Zygote formation and development of an embryo from the zygote.



(d) Zygote (showing fusion of gametes) single celled.

(ii) The above stages in sequence are:

[2]

(a) Implantation of embryo in uterus, (d)

(b) Fertilisation (a)

(c) Development of embryo (c)

(d) Zygote formation (b)

(iii) The embryo after being implanted in uterus, continues to develop and divide and differentiate into body parts. This stage of embryo where body parts are distinct and identified is called foetus.

After the complete development of foetus, the mother gives birth to baby.

[1]

21. Differences between Noise and Music are as follows:

[3]

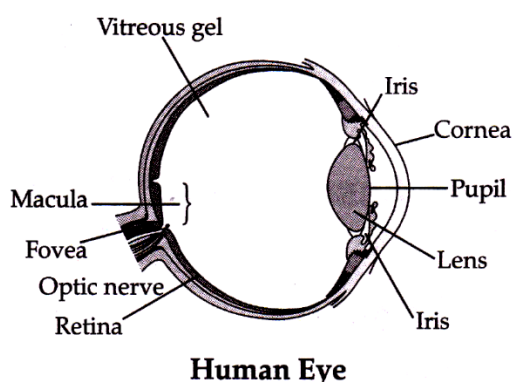
S. No.	Noise	Music
(i)	It is unpleasant sound.	It is pleasant sound.
(ii)	It leads to noise pollution.	No such pollution takes place.
(iii)	It is hazardous to health.	It is good for health.
(iv)	No special instruments are required to produce noise.	Special instruments are required to play music.

Sound which is unpleasant to our ears is called noise while the sound which is enjoyable, e.g., from musical instruments is called music. So, music produces a pleasing sensation. The loud music or music with high amplitudes becomes very harsh and not enjoyable. So, in this case, music becomes noise

[2]

22. **Human eye:** The eye has a roughly spherical shape. The outer coat of eye is white. Its transparent front part is called cornea. Behind cornea a dark muscular structure is situated called iris. There is a small opening called the pupil. The size of the pupil is controlled by the iris. The iris controls the amount of light entering into the eye. The lens focuses light on the back of the eye, on a layer called retina. The retina contains several nerve cells. They transmit impulses to the brain through the optic nerve and hence, image is formed.

[3]



[2]

**23.** The three measures to protect ourselves from lightning are:

**[5]**

- (i) Do not stand underneath a natural lightning rod such as tall and isolated tree.
- (ii) Stand away from any fountain or any water body.
- (iii) Switch off all electrical appliances.
- (iv) Stay away from windows and metal objects like a phone, wire fences and clothes-lines.
- (v) No open place is safe. One should seek shelter inside a house or a large building.