

**CBSE**  
**Class VIII Science**

**Time: 2 ½ hrs**

**Total Marks: 80**

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**General Instructions:**

1. The question paper consists of 34 questions and is divided into four sections, A, B, C and D
  2. All questions are compulsory.
  3. Section A comprises question numbers 1 to 15. These are multiple choice questions carrying one mark each. You are to select one most appropriate response out of the four provided options.
  4. Section B comprises question numbers 16 to 22. These are SAQs carrying two marks each.
  5. Section C comprises question numbers 23 to 31. These are SAQs carrying four marks each.
  6. Section D comprises question numbers 32 to 34. These are SAQs carrying five marks each.
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**SECTION A**

- Q. 1** What is the role of legumes in a crop rotation programme? (1)
- A. To prevent soil erosion
  - B. To prevent diseases of crop plants
  - C. To increase soil fertility
  - D. To prevent water loss from the soil
- Q. 2** Which method of irrigation conserves maximum amount of water? (1)
- A. Dhekli system
  - B. Drip system
  - C. Sprinkler system
  - D. Moat system
- Q. 3** Which of the following diseases can be prevented by vaccination? (1)
- A. Hepatitis
  - B. Diabetes
  - C. Goitre
  - D. Scurvy

**Q. 4** Against which disease are children protected under the Pulse Polio Programme? (1)

- A. TB
- B. Polio
- C. Hepatitis
- D. Measles

**Q. 5** Which plastic is used in the non-stick pan shown in the picture below? (1)



- A. Nylon
- B. Rayon
- C. Teflon
- D. Bakelite

**Q. 6** When sulphur is heated, a gas is formed which forms a new substance when dissolved in water. The gas and the new substance formed are (1)

- A.  $\text{SO}_2$ ,  $\text{H}_2\text{SO}_4$
- B.  $\text{SO}_3$ ,  $\text{H}_2\text{SO}_4$
- C.  $\text{SO}_2$ ,  $\text{H}_2\text{SO}_3$
- D.  $\text{H}_2\text{S}$ ,  $\text{H}_2\text{SO}_3$

**Q. 7** Which one of the following reactions is not possible? (1)

- A.  $\text{CuSO}_4 + \text{Fe} \rightarrow \text{FeSO}_4 + \text{Cu}$
- B.  $\text{FeSO}_4 + \text{Zn} \rightarrow \text{ZnSO}_4 + \text{Fe}$
- C.  $\text{ZnSO}_4 + \text{Cu} \rightarrow \text{CuSO}_4 + \text{Zn}$
- D.  $\text{Cu} + \text{AgNO}_3 \rightarrow \text{CuNO}_3 + \text{Ag}$

**Q. 8** When added to cold water, which metal produces lots of bubbles rapidly? (1)

- A. Sodium
- B. Copper
- C. Magnesium
- D. Zinc

**Q. 9** Heavy motor vehicles such as trucks and tractors run on (1)

- A. Petrol
- B. Diesel
- C. Kerosene
- D. Gasoline

- Q. 10** Perfumes are obtained from (1)
- A. Coal
  - B. Coal tar
  - C. Coke
  - D. Coal gas

- Q. 11** What does the bursting of an air-filled balloon depict? (1)



- A. Gas exerts pressure on the walls of its container.
  - B. Liquid exerts pressure on the walls of its container.
  - C. Solids exert pressure.
  - D. All of the above.
- Q. 12** The magnitude of non-contact forces (1)
- A. Increases with the increase in separation
  - B. Decreases with the increase in separation
  - C. Does not depend on separation
  - D. Sometimes increases and sometimes decreases depending on the nature of non-contact forces
- Q. 13** To minimise friction due to water (or any other liquid) and air (or any other gas), the moving body should have (1)
- A. Rectangular shape
  - B. Circular shape
  - C. Underlined shape
  - D. Streamlined shape
- Q. 14** The buzzing sound produced by bees or mosquitoes is due (1)
- A. Voice from their vocal chords
  - B. Sound from their mouth
  - C. Flapping of their wings in the air
  - D. Vibration of air from their lungs

- Q. 15** When people used to communicate using drums (talking drums) in olden days, they used to beat the drums near a water body because (1)
- A. Their religious custom required them to do so.
  - B. The drum sound is heard quicker at the far off place.
  - C. The drum beater often required water for drinking.
  - D. Beating the drum near the water body prolonged the life of the drum.

## **SECTION B**

- Q. 16** We have read about floods being caused by deforestation. Explain how. (2)
- Q. 17** Why is it important to loosen the soil before sowing seeds? (2)
- Q. 18** What role is played by leguminous plants in enriching soil fertility? (2)
- Q. 19** A cotton shirt and a polyester shirt are dried in the Sun. Which one will dry faster and why? (2)
- Q. 20** (2)
- (i) Name the non-metal which is used for the preservation of food materials. Why?
  - (ii) Write another use of it.
- Q. 21** Why does an object always fall downwards and not upwards? (2)
- Q. 22** Why does a violinist put rosin on his bow? (2)

## **SECTION C**

- Q. 23** (4)
- (i) Scientists and environmentalists continuously emphasise the negative effects of deforestation. Mention these effects.
  - (ii) Which of the following cannot be caused by deforestation? Why?
    - (a) Desertification
    - (b) Severe droughts
    - (c) Increase in soil fertility
    - (d) Global warming
- Q. 24** (4)
- (i) State the differences between manures and fertilisers.
  - (ii) Mahesh uses a cultivator for ploughing, whereas Satish uses a hoe for ploughing. What advantage does Mahesh have over Satish?

- Q. 25** (4)  
(i) You must have seen dry fruits being sold in sealed, airtight packets. What is the reason for this?  
(ii) Why should we preserve food properly?

- Q. 26** Of the following materials: (4)  
Cotton, Nylon, Terylene, Wool, PET, Acrylic  
(a) Which materials are polyesters?  
(b) Which material is a polyamide?  
(c) Which material is used as a substitute for wool?  
(d) Which material is used as a substitute for glass?

- Q. 27** Differentiate between metals and non-metals on the basis of their physical properties (four points). (4)

- Q. 28** What does LPG stand for? What are the advantages or characteristics which make LPG a good fuel? (4)

- Q. 29**  
(i) Why is the force of friction considered a contact force? (4)  
(ii) Why is the wall of a dam made stronger and thicker at the bottom than at the top?

- Q. 30** (4)  
(i) What is a ball bearing? What is its use?  
(ii) A pencil eraser loses tiny pieces of rubber each time you use it. Why does this happen?

- Q. 31** (4)  
(i) What determines the shrillness of the sound produced by a body?  
(ii) What are the three main causes of oceanic sound pollution?

## **SECTION D**

- Q. 32** What is transplantation? Write the advantages of the transplantation process. (5)

- Q. 33** What is meant by saying that metals are (5)  
(i) Malleable  
(ii) Ductile  
(iii) Lustrous  
(iv) Conductors  
(v) Sonorous  
Give one application or use of each property.

**Q. 34**

(5)

(i) How does a rubber sucker work?



(ii) Why do astronauts wear special suits?

**CBSE**  
**Class VIII Science**  
**Solution**

**Time: 2 ½ hrs**

**Total Marks: 80**

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**SECTION A**

- 1. Ans.** Correct Option: [C]  
Solution: The nitrogen-fixing bacteria present in leguminous plants add nitrogen to the soil and thereby increase soil fertility.
- 2. Ans.** Correct Option: [B]  
Solution: The drip irrigation system provides water to the plants drop by drop. So, water does not get wasted at all. In this way, it conserves maximum amount of water.
- 3. Ans.** Correct Option: [A]  
Solution: Several communicable diseases such as cholera, tuberculosis, smallpox and hepatitis can be prevented by vaccination. Diabetes, goitre and scurvy are metabolic diseases and can be prevented by consuming or limiting the intake of specific nutrients.
- 4. Ans.** Correct Option: [B]  
Solution: Children are protected against polio under the Pulse Polio Programme. Polio disease is prevented by giving children the oral polio vaccine (OPV).
- 5. Ans.** Correct Option: [C]  
Solution: Teflon is used in cookware coating as it is non-sticky.
- 6. Ans.** Correct Option: [C]  
Solution: When sulphur is heated, it reacts with the atmospheric oxygen to form sulphur dioxide gas. This gas when dissolved in water forms sulphurous acid ( $H_2SO_3$ ).

$$S + O_2 \rightarrow SO_2$$
$$SO_2 + H_2O \rightarrow H_2SO_3$$
- 7. Ans.** Correct Option: [C]  
Solution: Copper is less reactive than zinc, so it cannot displace zinc from its solution. Therefore, this reaction will not occur.

- 8. Ans.** Correct Option: [A]  
Solution: Sodium metal produces lots of bubbles rapidly when it is added to cold water.
- 9. Ans.** Correct Option: [B]  
Solution: Diesel acts as a fuel for heavy motor vehicles.
- 10. Ans.** Correct Option: [B]  
Solution: Perfumes are obtained from coal tar.
- 11. Ans.** Correct Option: [A]  
Solution: Bursting of an inflated balloon shows that gas exerts pressure on the walls of its container.
- 12. Ans.** Correct Option: [B]  
Solution: The magnitude of non-contact forces decreases with the increase in separation.
- 13. Ans.** Correct Option: [D]  
Solution: To minimise friction due to water (or any other liquid) and air (or any other gas), the moving body should have a streamlined shape. Such a shape offers minimum resistance due to friction.
- 14. Ans.** Correct Option: [C]  
Solution: Flapping of wings by bees and mosquitoes produces a high frequency vibration in the air which is heard as buzzing.
- 15. Ans.** Correct Option: [B]  
Solution: Water is a denser medium, and hence, sound travels faster in it. Hence, beating drums near the water body ensured that the sound travelled faster and farther to be heard at far off places.

## SECTION B

- 16.Ans.** Due to the loss of forest cover, the percolation of rain water into the soil is reduced. There is a decrease in the water-holding capacity of the soil. The movement of water from the soil surface into the ground, i.e. the infiltration rate is reduced. The rain water from deforested soil rushes into the rivers quickly, eventually causing floods.
- 17.Ans.** Loosening the soil allows the roots of plants to penetrate freely and deeper into the soil and allows the roots to breathe easily. The loose soil helps in the growth of worms and microbes present in the soil. These worms and microbes add humus to the soil and enrich it. Loosening brings nutrient-rich soil to the top for the intake of plants.
- 18.Ans.** Leguminous plants have nitrogen-fixing bacteria in their root nodules, which can fix atmospheric nitrogen and make it available to the plants and soil. These bacteria enrich the soil with nitrogen and thereby increase soil fertility.
- 19.Ans.** The polyester shirt will dry faster.  
Cotton readily absorbs water, whereas polyester is not a good absorbent of water. Therefore, polyester clothes dry faster.
- 20.Ans.**
- (i) Nitrogen is used for preserving food materials because of its inert behaviour.
  - (ii) Nitrogen is used up in the manufacture of fertilisers, ammonia etc.
- 21.Ans.** This happens because the Earth pulls all objects towards itself due to the attractive force called the force of gravity.
- 22.Ans.** A violinist puts rosin on his bow to increase friction between the bow and the violin strings, thereby producing sound.

## SECTION C

### 23.Ans.

- (i) The negative effects of deforestation are
- It causes an increase in the temperature of the Earth's atmosphere leading to global warming.
  - It leads to a shortage of wood and other forest products.
  - It causes soil erosion, makes the soil infertile and leads to desertification.
  - It causes frequent flooding of rivers, leading to loss of life and property.
  - It affects the water cycle, leading to a decrease in rainfall. This lowers the groundwater level and causes droughts.
  - It leads to extinction of many wild animals and plants.
- (ii) Increase in soil fertility cannot be caused by deforestation. Deforestation results in extensive soil erosion due to which the lower, hard and rocky layers get exposed. The fertile soil gets washed away during soil erosion. Hence, soil fertility gets reduced and is not increased during deforestation.

### 24.Ans.

- (i) Differences between manures and fertilisers:

<b>Manures</b>	<b>Fertilisers</b>
1. Natural substances obtained by the decomposition of plant and animal remains by bacteria	1. Inorganic substances or compounds
2. Provides humus to the soil	2. Does not provide humus to the soil
3. Less rich in plant nutrients	3. Rich in plant nutrients such as nitrogen, phosphorus and potassium
4. Can be prepared in fields	4. Prepared in factories
5. Inconvenient to store and transport	5. Easy to store and transport
6. Absorbed slowly by plants	6. Absorbed readily by plants

- (ii) A cultivator is a tractor-driven agricultural implement used for ploughing. It has many ploughshares which can dig into a considerable area of soil at the same time, loosening and turning it. Because Mahesh uses a cultivator for ploughing, he is able to save both labour and time as compared to Satish.

**25.Ans.**

- (i) Dry fruits are sold in sealed and airtight packets to prevent them from the attack of microbes and to preserve them for a longer time.
  
- (ii) If we do not preserve food properly, then the food may get spoilt by the action of microorganisms. Microorganisms which grow on food sometimes produce toxic substances that make the food poisonous, causing serious illness and may even result in death. Hence, it is important to preserve food properly to prevent it from getting spoilt.

**26.Ans.**

- (a) Terylene; PET
- (b) Nylon
- (c) Acrylic
- (d) PET

**27.Ans.** Differences in physical properties of metals and non-metals:

<b>Metals</b>	<b>Non-metals</b>
1. Metals are malleable and ductile.	1. Non-metals are neither malleable nor ductile. They are brittle.
2. Metals are good conductors of heat and electricity.	2. Non-metals are poor conductors of heat and electricity (Except graphite which is a good conductor of electricity).
3. Metals are lustrous.	3. Non-metals are not lustrous. They are dull.
4. Metals are strong. They have high tensile strength (Except sodium and potassium which are not strong and have low tensile strength).	4. Non-metals are not strong. They have a low tensile strength.

**28.Ans.** LPG stands for liquefied petroleum gas. LPG is a good fuel because of its following advantages:

- (i) LPG burns easily.
- (ii) LPG has a high calorific value. Due to this, a given amount of LPG produces a lot of heat.
- (iii) LPG burns with a smokeless flame and hence does not cause air pollution.
- (iv) LPG does not produce any poisonous gases on burning.
- (v) LPG does not leave behind any solid residue on burning.

**29.Ans.**

- (i) The force of friction always acts on all the moving objects. It arises only when the surfaces of two objects are in touch with each other; therefore, it is considered a contact force.
- (ii) The wall of a dam is made stronger and thicker at the bottom than at the top so as to withstand high sideways pressure exerted by deep water stored in the reservoir of the dam.

**30.Ans.**

- (i) A ball bearing is a device which consists of a ring of small metal balls. It is designed to make the moving parts of a machine to roll over each other rather than slide.
- (ii) When we use a pencil eraser, friction between the eraser and the paper rubs off some rubber particles from the eraser. Thus, the eraser loses tiny pieces of rubber due to friction.

**31.Ans.**

- (i) Shrillness of the sound produced by a body is determined by the frequency of the vibrating body.
- (ii) Oceanic sound pollution is caused by
  - (a) Underwater blasting
  - (b) Dredging
  - (c) Underwater earthquakes

## **SECTION D**

**32.Ans.** The process of transferring the seedlings from the nursery to the main field by hand is called transplantation or transplanting.

Advantages of transplantation are

- (i) It enables us to select only the better and healthy seedlings for the cultivation of crops. This selection is, however, not possible when the seeds are directly sown in the soil.
- (ii) It allows deeper penetration of the plant roots inside the soil.
- (iii) It promotes better development of the shoot system of plants.
- (iv) It allows the seedlings to be planted at the right spacing so that the plants get uniform distribution of sunlight, water and nutrients.

**33.Ans.**

- (i) Malleable: This means that metals can be beaten into thin sheets with a hammer. The property which allows the metals to be hammered into thin sheets is called malleability. Aluminium metal can be hammered to form aluminium foils.
- (ii) Ductile: This means that metals can be drawn (or stretched) into thin wires. The property which allows the metals to be drawn into thin wires is called ductility. Copper metal can be drawn into thin copper wires (used as electric wires).
- (iii) Lustrous: This means that metals have a shiny appearance. The shiny appearance of the metals is called metallic lustre. Gold metal is used for making jewellery because of its shiny lustre.
- (iv) Conductors: This means that metals allow heat and electricity to pass through them easily. Copper metal is used in making cooking utensils because of its high heat conductivity.
- (v) Sonorous: This means that metals make a ringing sound when we strike them. The property by virtue of which metals make a ringing sound is called sonority. Metal sheets are used for making bicycle bells and temple bells.

**34.Ans.**

- (i) When we press the sucker, the air between its cup and the surface escapes out. The sucker sticks to the surface because the pressure of the atmosphere works on it. To pull the sucker out, the applied force should be large enough so as to overcome the atmospheric pressure.
- (ii) Spacesuits are specially designed to protect astronauts from the cold, dangerous radiations and low pressure in space and to provide oxygen to breathe. Thus, wearing a spacesuit allows an astronaut to survive and work in space.