



CLASS: VII
DATE: 17 /09 /2023

SUBJECT: SCIENCE

MAX. MARKS: 80
TIME: 3 HOURS

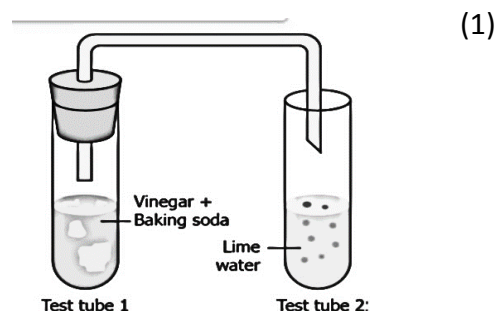
General Instructions:

- This question paper consists of 39 questions in 5 sections.
- All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
- Section A** consists of 20 objective-type questions carrying 1 mark each.
- Section B** consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
- Section C** consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
- Section D** consists of 3 Long Answer type questions carrying 05 marks each. Answers to these questions should be in the range of 80 to 120 words.
- Section E** consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

SECTION – A

Select and write one most appropriate option out of the four options given for each of the questions 1 – 20.

1. In an attempt to demonstrate chemical change, the following apparatus was set up. Which among the following statement(s) is (are) correct?



- A chemical reaction between the vinegar and the baking soda produces bubbles of oxygen gas.
 - The gas evolved turns lime water milky through the formation of calcium carbonate precipitate.
 - A chemical reaction between the vinegar and the baking soda produces bubbles of carbon dioxide gas.
 - The gas evolved turns lime water milky through the formation of calcium bicarbonate precipitate.
- (a) Only (iv) (b) (ii) and (iii) (c) (iii) and (iv) (d) Only (i)
2. Sangeeta squeezed out a few drops of lemon juice in a test tube. She dipped red litmus paper into that juice. What is the observation of this experiment? (1)
- There is no change in the colour of red litmus paper.
 - The red litmus paper turns blue.
 - The red litmus paper turns pink.
 - The red litmus paper turns green.

3. Which of the following statement is true about oesophagus in human digestive system? (1)
- (a) It absorbs water and mineral salts.
 - (b) It is connected to the small intestine.
 - (c) It breaks down food into simpler substances.
 - (d) It transports chewed food into the stomach.

4. 500 mL of water at 45°C is mixed with 500 mL of water at 60°C. What will be the temperature of the mixture? (1)
- (a) More than 60°C but less than 45°C
 - (b) 105°C
 - (c) Between 45°C and 60°C
 - (d) 15°C

5. Which one of the following does NOT occur during a chemical change? (1)
- (a) A change in smell may take place.
 - (b) No new substances are produced.
 - (c) A gas may be produced.
 - (d) Sound may be produced.

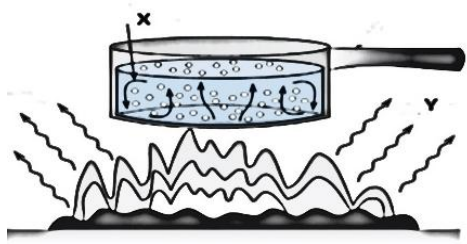
6. What is the mode of nutrition exhibited by the figure given aside? (1)

- (a) Saprotrophic nutrition
- (b) Parasitic nutrition
- (c) Partially autotrophic nutrition
- (d) Autotrophic nutrition



7. Which of the following solution will turn Phenolphthalein pink? (1)
- (a) Hydrochloric acid
 - (b) Ascorbic acid
 - (c) Lime water
 - (d) Citric acid

8. Identify the modes of heat transfer represented by X and Y. (1)



- (a) X- Conduction, Y- Radiation
- (b) X- Conduction, Y- Convection
- (c) X- Radiation, Y- Convection
- (d) X- Convection, Y- Radiation

9. Rinu made a list of changes around us. Identify the physical changes from the list given below: (1)

- (i) Sharpening of a pencil.
 - (ii) Curdling of milk.
 - (iii) Dissolving sugar in water.
 - (iv) Burning of fossil fuels.
- (a) (i) and (ii) (b) (i) and (iv) (c) (i) and (iii) (d) (ii) and (iii)

10. Name the finger-like projections on the inner walls of the small intestine. (1)

- (a) Caecum
- (b) Villi
- (c) Pseudopodia
- (d) Oesophagus

11. During the exhalation process, you exhaled X% of oxygen and Y% of carbon dioxide. (1)
Which of the following correctly represents X and Y?
(a) X- 16.4%, Y- 4.4% (b) X- 21%, Y- 0.04%
(c) X- 21%, Y- 4.4% (d) X- 16.4%, Y- 21%

12. Which of the following is a good conductor of heat? (1)
(a) Wooden scale (b) Plastic pen (c) Silk cloth (d) Copper spoon

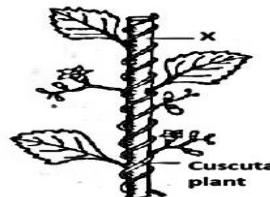
13. Identify the part of the digestive system that helps in the absorption of water and some salts from the undigested food material. (1)
(a) Stomach (b) Small intestine (c) Large intestine (d) Gall bladder

14. Breathing is a process that (1)
(i) provides O_2 to the body.
(ii) breaks down food to release energy.
(iii) helps the body to get rid of CO_2 .
(iv) produces water in the cells.

Which of the following gives the correct combination of functions of breathing?

- (a) i and ii (b) i and iii (c) iii and iv (d) ii and iv (1)

15. Observe the given diagram and identify plant X. (1)
(a) Parasite
(b) Fungi
(c) Host
(d) Insectivorous plant



16. Humans cannot digest cellulose like cows. Why? (1)
(a) They have smaller stomach.
(b) They do not have cellulose-digesting bacteria in their stomach.
(c) They do not consume cellulose.
(d) They have less digesting capacity than ruminants.

Q. no 17 to 20 are Assertion – Reason based questions.

These consist of two questions – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below:

- (a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true and R is not the correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

17. Assertion: Explosion of firework is a chemical change. (1)
Reason: Explosion produces heat, light, sound and unpleasant gases.
18. Assertion: Digital thermometer consists of mercury. (1)
Reason: Mercury is a toxic substance and is very difficult to dispose of if a thermometer breaks.
19. Assertion: Plants cannot grow well if the soil is too acidic or too basic. (1)
Reason: When the soil is too acidic, it is treated with organic matter.
20. Assertion: Insects have a special system of air tubes called tracheae for respiration. (1)
Reason: Tracheae are found only in insects and not in any other group of animals.

SECTION – B

Q. no. 21 to 26 are very short answer questions.

21. (a) Represent the process of rusting with the help of a word equation. (2)
(b) Define galvanization.

OR

Observe the given diagram and answer the following questions:



- (a) Identify the organism.
(b) State the function of **A**.

22. A student dipped turmeric paper into two test tubes, A and B, containing dilute hydrochloric acid and sodium hydroxide solutions, respectively. In which test tube will colour change be observed? Give reason (2)

23. Explain the symbiotic relationship between Rhizobium bacteria and leguminous plants. (2)

OR

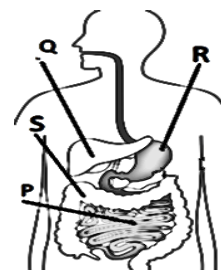
State two differences between physical and chemical changes.

24. Priya participated in a 200-meter race competition held at her school and won the race. When she came home, she had cramps in her leg muscles. After a massage, she was relieved of the pain. Answer the following questions related to the situation: (2)

- (a) What is the reason for the muscle cramps in her legs?
(b) Why did she feel comfortable after a massage?

25. Observe the diagram and answer the following questions: (2)

- (a) Identify the labeled part of the digestive system where the digestion of fats is completed.
(b) Name the parts **Q** and **R**.



26.  (2)
x

- (a) Observe the thermometer and name the labeled part **X**.
(b) What is the use of 'X' in the given thermometer?

SECTION – C

Q. no. 27 to 33 are short answer questions.

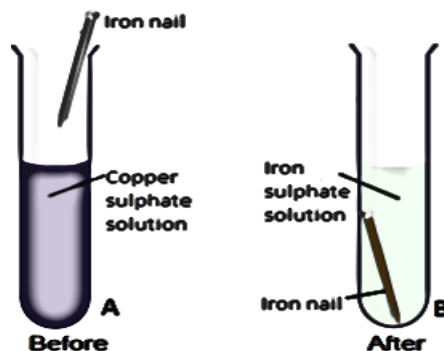
27. The following statements describe the three steps in animal nutrition: (3)

Read each statement and give one word for each statement.

- (a) Utilization of the digested food components by the cells of the body.
(b) Breaking of complex food substances into simpler and soluble substances.
(c) Removal of undigested and unabsorbed solid residues of food from the body.

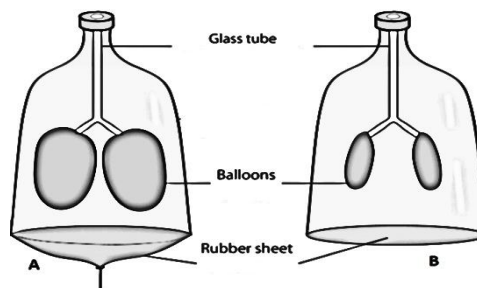
28. The diagram below represents the chemical reaction between copper sulphate solution and iron nail. Observe the figures and answer the following questions: (3)

- (a) Identify the colour of the solution in test tubes A and B.
 (b) What happened to the iron nail in test tube B?
 (c) Write the word equation to represent the above chemical reaction.



29. The given figure shows a model demonstrating the mechanism of breathing. (3)

- (a) Identify the process shown in figures A and B.
 (b) What happens to the diaphragm and chest cavity in figure A?



OR

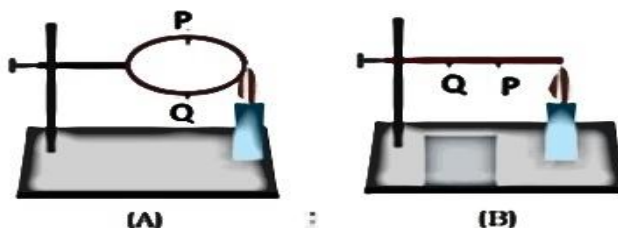
You are packing your bag for a tour of Jammu and Kashmir during the winter.

- (a) Which kind of clothes would you pack in your bag? Justify your answer.
 (b) Select the colour of clothes that provide you with better warmth during the winter.

30. State the main function of the following: (3)

(a) Stomata (b) Guard cells (c) Chlorophyll

31. In the arrangements A and B shown in the figure, pins P and Q are fixed to a metal loop and an iron rod, respectively, with the help of wax. (3)



- (a) In which case both the pins are likely to fall at different times?
 (b) Name the mode of heat transfer that occurs in both cases A and B. Define it.
 (c) In which case both the pins are likely to fall at the same time?

32. You are provided with three solutions, such as ammonium hydroxide, sugar solution and vinegar, in three beakers labeled as A, B and C respectively. How will you identify the nature of these solutions? You have both blue litmus paper and a turmeric indicator. (3)

33. (a) Name the respiratory organ(s) found in the following organisms: (3)

(i) Frog (ii) Earthworm

- (b) How does respiration occur in the roots of plants?
 (c) Anaerobic respiration help in the beverage and baking industries. Justify

SECTION – D

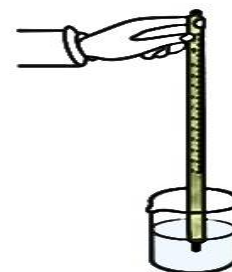
Q.no. 34 to 36 are Long answer questions.

34. A silvery-white metal (P) in the form of ribbon, burnt in air with a brilliant white light to form a white powdery ash (Q). On dissolving ash in water, it forms a new substance (R). (5)
- (a) Identify P, Q and R.
(b) What is the nature of the substance R?
(c) What is the use of substance R in medicine?

OR

How do insectivorous plants like pitcher plants obtain their nutrition? Explain in five points.

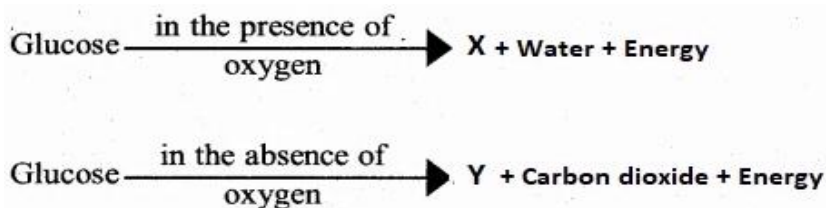
35. Observe the given diagram and answer the following questions: (5)



- (a) Identify the thermometer.
(b) What is the measurable range of this thermometer?
(c) Why don't we use the same thermometer to measure our body temperature?
(d) What is the normal temperature of the human body?
(e) State one precaution to be taken while handling this thermometer.

OR

Observe the word equations given below and answer the following questions:



- (a) What are X and Y?
(b) State two differences between aerobic and anaerobic respiration.
(c) Where does respiration take place in our body?
36. (a) Write the chemical composition of the following: (5)
1. Calamine solution 2. Slaked lime 3. Milk of magnesia
(b) What happens when an acid reacts with a base?
(c) Potassium hydroxide is found in liquid soap. Judge the nature of liquid soap using the China rose indicator.

OR

- (a) What are ruminants? Give two examples.
(b) Describe the role of the following in the stomach of the human digestive system:
(i) Hydrochloric acid (ii) Mucous (iii) Digestive juices

SECTION – E

Q. no. 37 to 39 are case-based/data-based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.

37. To analyze the variations in breathing rate during different physical activities, a study was conducted involving participants engaged in distinct exercises: walking, jogging, running etc. They created a table based on the breathing rate of one of the participants, Amay, as shown below: (4)

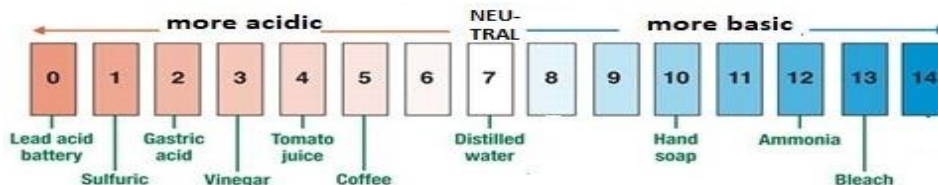
Activity	Breathing rate per minute
1. Walking	20
2. Running	28
3. Jogging	25
4. Sleeping	13

- (a) What is breathing rate? If Amay breathes 60 times in 4 minutes, what is his breathing rate?
 (b) In which activity did Amay experience the fastest breathing rate? Why?

OR

- (b) Why did Amay feel the slowest breathing rate while sleeping? What is the average breathing rate of an adult human being at rest?

38. (4)



The pH scale is used to rank solutions in terms of acidity or basicity. The pH scale is often said to range from 0 to 14. Anything below 7.0 is acidic, and anything above 7.0 is basic. Observe the pH scale as given above and answer the following questions:

- (a) Coffee is bitter in taste. Is it acidic or basic?
 (b) The pH of bleach is 13. What is the nature of bleach?
 (c) How can you differentiate an acid from a base? (Write 2 points)

OR

- (c) What is the pH of neutral substances? Give one example of a neutral substance.

39. A group of friends were on an educational journey to a local botanical garden, where they had the opportunity to observe a diverse range of plant species. During their visit, the teacher explained to them about two primary modes of plant nutrition: autotrophs and heterotrophs. (4)

- (a) An organism (X) can grow on leather, clothes, and other articles and spoil the products. What is organism X?
 (b) Name a plant that has both autotrophic and heterotrophic modes of nutrition.
 (c) The slimy green patches in ponds or in other stagnant water bodies are called algae. Are algae autotrophs or heterotrophs? Give reason

OR

- (c) Which mode of nutrition is shown by mosquitoes, bed bugs, and lice? Justify your answer.

