

9th CBSE Science St. Peter's Secondary School

Student Name: _____ Roll. No. _____

General Instructions :

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

SECTION -A

(Select and write the most appropriate option out of the four options given for each of the questions 1-20)

1. Fats are stored in human body as?
(A) Adipose tissue (B) bones (C) cartilage (D) cubodial epithelium
2. In liver, many poisons and drugs are detoxified by:
(A) SER (B) RER (C) Cetrosome (D) All the above
3. The term protoplasm was coined by:
(A) Robert Brown (B) Leuwenhoek. **(C) Purkinje** (D) Brown Flemming
4. Oxygen is absorbed by living cells by process of
(A) Osmosis (B) Plasmolysis (C) Diffusion (D) All the above
5. **Rohu and catls are type of:**
(A) Fresh water fish (B) Marine water fish (C) Both A and B (D) None of these
6. A long tubular outgrowth of a nerve cell which conducts impulses away from the cell body is termed as:
(A) cyton (B) axon (C) Neuron (D) dendrite
7. Intestine absorbs due digested food materials. What types of epithelial are responsible for that?
(A) Stratified squamous epithelium (B) columnar epithelium
(C) Pseudostratified epithelium (D) Cuboidal epithelium
8. The direction of acceleration is the same as the direction of.....
(A) displacement (B) change in velocity
(C) velocity (D) all of these
9. Which of the following is true of two objects of different masses falling freely near the moon's surface?

- (A) They both have different accelerations. (B) They have the same velocities at any instant
(C) They experience forces of the same magnitude (D) They change their inertia
10. When a body falls freely towards the earth, then its total energy
(A) Decreases (B) Increases
(C) First increases and then decreases (D) Remains constant
11. Which of the following causes the temperature of a substance to remain constant while it is undergoing a change in its state?
(A) Latent heat (B) Lattice energy (C) Loss of heat (D) None of these
12. Barometer measures:
(A) Pressure (B) Atmospheric pressure (C) Wind velocity (D) Gaseous pressure
13. Tincture of iodine has antiseptic properties. This solution is made by dissolving?
(A) Iodine in potassium iodide (B) iodine in Vaseline
(C) iodine in water (D) iodine in alcohol
14. The formula of ethanol is $C_2H_5 - OH$. What will be its molecular mass?
(A) 46 u (B) 34 u (C) 34 g (D) 46 g
15. The isotope used to remove the brain tumours and treatment of cancer is-
(A) U-235 (B) Na-24 (C) Iodine (D) CO-60
16. When unbalanced forces act on a body, the body:
(A) Must move with uniform velocity (B) Must remain at rest
(C) Must experience acceleration (D) Must move in a curved path

Q.no 17 to 20 are Assertion - Reasoning based questions. These consist of two statements - Assertion (A) and Reason (R). Answer these questions 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: The inner lining of intestine has tall epithelial cells.
Reason: Columnar epithelium facilitates absorption and secretion.
18. Assertion: Electrons moving in the same orbit will lose or gain energy.
Reason: On jumping from higher to lower energy level, the electron will gain energy
19. Assertion: The loudness of sound depends on the amplitude of the sound wave.
Reasoning: A larger amplitude means greater energy, leading to a louder sound.
20. Assertion: True solution exhibits Tyndall effect.
Reason: Particles are very large in size.

SECTION B

Q No. 21 to 26 are very short answer questions

21. Differentiate the following activities on the basis of voluntary or involuntary.
(a) Jumping of frog (b) Pumping of the heart
(c) Writing with hand (d) Moving of chocolate in stomach

22. How are chromatin, chromatid and chromosomes related to each other?
23. What is compressibility? Out of solid, liquid and gas which one is highly compressible?
24. Water hyacinth floats on the water surface. Explain?
25. Does Newton's third law apply to a system where bodies do not actually touch each other?
26. Why are sound waves called mechanical waves?

SECTION C

Q.no. 27 to 33 are Short answer questions

27. Differentiate between striated, Unstriated and cardiac muscles on the basis of their structure and site/location in the body.
28. (a) Identify the cell. (b) Name the parts labeled 1, 2, 3, 4, 5, and 6.
(c) Where is this cell likely to be found in the human body and what is its function?
29. Name the process associated with the following
(a) Dry ice is kept at room temperature and at one atmospheric pressure.
(b) A drop of ink placed on the water's surface contained in a glass spreads throughout the water.
(c) A potassium permanganate crystal is in a beaker and water is poured into the beaker with stirring.
30. To make a saturated solution, 36 g of sodium chloride is dissolved in 100 g of water at 293 K. Find its concentration at this temperature.
31. What is the physical state of water at
(a) 250°C (b) 100°C (c) 25°C
32. Why does a block of plastic released under water come up to the surface of water?
33. The kinetic energy of an object of mass, m moving with a velocity of 5 m/s is 25 J. What will be its kinetic energy when its velocity is doubled? What will be its kinetic energy when its velocity is increased three times?
- (Q.no.34 to 36 are long answer questions)

SECTION-D

34. Name three basic scientific approaches for increasing yield of a crop.
35. How will you find the valency of chlorine, Sulphur and magnesium.
36. (i) A train starting from a railway station and moving with uniform acceleration attains a speed 40 km/h in 10 minutes. Find its acceleration.
(ii) What is the quantity which is measured by the area occupied below the velocity-time graph?
(iii) When will you say a body is (i) uniform acceleration?
(ii) Non-uniform acceleration?

SECTION-E

Q.no. 37 to 39 are case-based/data-based questions with 2 to 3 short sub-parts

37. A science student, Aisha, is conducting an experiment in her school laboratory to explore Archimedes' Principle and buoyancy. She has two objects, an iron cube and a plastic sphere, both of which are placed in a large container of water. Aisha measures the displacement of

water in a graduated cylinder when each object is fully submerged. The first object, an iron cube, has a side length of 4 cm, and the second object, a plastic sphere, has a radius of 3 cm. Aisha records the following results:

The iron cube displaces 64 cm³ of water.

The plastic sphere displaces 113.04 cm³ of water.

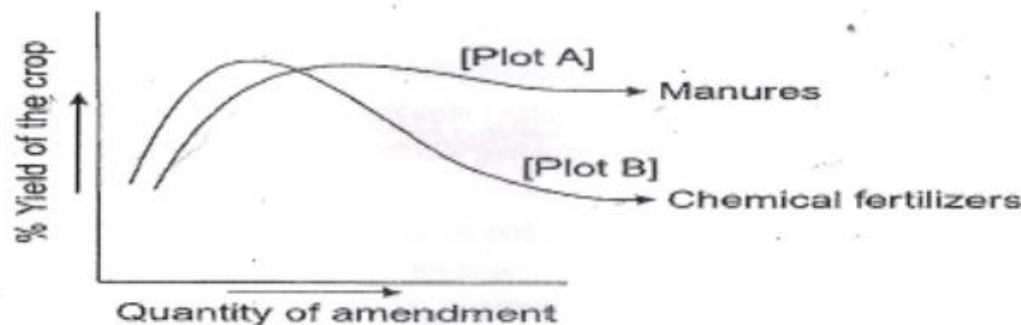
Aisha also finds that the iron cube sinks to the bottom of the tank, while the plastic sphere floats on the surface of the water. She decides to calculate the densities of both objects based on the water displacement and their respective masses. The mass of the iron cube is 520 g, and the mass of the plastic sphere is 45 g. Aisha uses this data to draw conclusions about the factors influencing buoyancy.

- i) Explain how Archimedes' Principle applies to the displacement of water when an object is submerged.
- ii) What is the relationship between the density of an object and its ability to float or sink in water?
- iii) How would you calculate the density of an object using the mass and volume of water displaced?
- iv) Why does the iron cube sink while the plastic sphere floats, even though they are submerged in the same water?

38. The endoplasmic reticulum is a large network of membrane-bound tubes and sheets. It looks like long tubules or round or oblong bags (vesicles). It was discovered by Porter and Thompson. The ER membrane is similar in structure to the plasma membrane. There are two types of ER- rough endoplasmic reticulum (RER) and smooth endoplasmic reticulum (SER). RER looks rough under a microscope because it has particles called ribosomes attached to its surface. The ribosomes, which are present in all active cells, are the sites of protein manufacture. The manufactured proteins are then sent to various places in the cell depending on need, using the ER. The SER helps in the manufacture of fat molecules, or lipids, important for cell function. Some of these proteins and lipids help in building the cell membrane. This process is known as membrane biogenesis. Some other proteins and lipids function as enzymes and hormones. Although the ER varies greatly in appearance in different cells, it always forms a network system.

- i) Who discovered endoplasmic reticulum?
- ii) Which are the components of endoplasmic reticulum?
- iii) Endoplasmic reticulum membrane which is associated?
- iv) Enlist the types of Endoplasmic Reticulum?

39. The figure given below shows two crop fields (plot A and plot B) that have been treated by manures and chemical fertilizers respectively, keeping other environmental factors same.



Read the given passage carefully and give the answer of the following questions:

- Why does plot B show sudden increase and then gradual decrease in yield?
- Why is the highest peak in plot A graph slightly delayed?
- What is the reason for the different pattern of the two graphs?
- Name the nutrients which are supplied by green manure to the soil.