

Sample Paper 1

Class IX 2022-23

Science (086)

Time: 3 Hours

Max. Marks: 80

General Instructions:

1. This question paper consists of 39 questions in 5 sections.
 2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
 3. Section A consists of 20 Objective Type questions carrying 1 mark each.
 4. 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.
 5. 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.
 6. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
 7. 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. People sometimes add salt to the water in which eggs are to be boiled. What is the main reason for this?



- (a) Adding salt to the water before the egg is cooked makes the egg tastier.
- (b) Adding salt to the water increases its boiling point and cooks the egg better.
- (c) Adding salt to the water reduces the water temperature cooking the egg faster.
- (d) Adding salt to the water kills micro organisms making the egg safer to eat.

Continue on next page.....

2. Glass rod are generally used to stir liquid chemicals because :



- (a) It provides controlled agitation to the reaction.
(b) It does not react with chemicals in the solution.
(c) It has a rounded ends to support proper stirring.
(d) All of the above
3. The carbon atom forms a part of all the major molecules found in living things. Which of the following does not contain carbon?



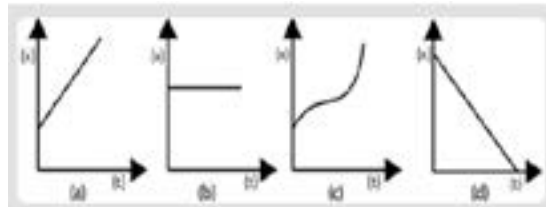
- (a) DNA
(b) HCl
(c) Plastics
(d) Diesel
4. In 1911, the physicist Ernest Rutherford discovered that atoms have tiny, dense nuclei by shooting positively charged particles at a very thin gold foil, Which physical property of gold was used by Rutherford in his gold leaf experiment?
- (a) non corrosive
(b) highly malleable
(c) highly ductile
(d) non reactive
5. Food is converted to energy in-
- (a) Chloroplast
(b) Nucleus
(c) Mitochondria
(d) Vacuole

Continue on next page.....

6. Cell theory states that all organisms are made up of one or more similar units of organization called cells. Which of the following organisms do not strictly adhere to this theory?

- (a) protozoa
- (b) bacteria
- (c) viruses
- (d) algae

7. The figure shows four graphs of displacement (x) versus time (t), the graph that shows a constant, positive and non-zero velocity is



- (a) A
- (b) B
- (c) C
- (d) D

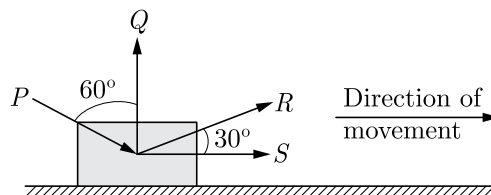
8. A force of 12N gives an object an acceleration of 4 m/s^2 . The force required to give it an acceleration of 10 m/s^2 is

- (a) 15N
- (b) 20N
- (c) 25N
- (d) 30N

9. When an object is thrown upward, the force of gravity is

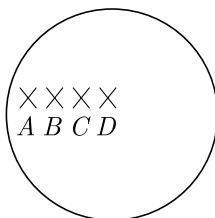
- (a) opposite to the direction of motion
- (b) in the same direction as the direction of motion
- (c) becomes zero at the highest point
- (d) increases as it rises up

10. Four forces of equal magnitude are acting on an object as shown in figure. Which of the following forces does the least work?



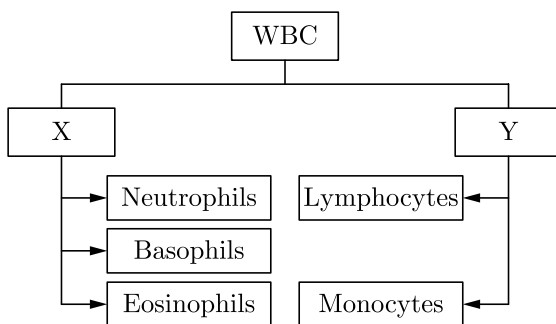
- (a) P
- (b) Q
- (c) R
- (d) S

11. A man sings in a circular room. At which position will he hear himself the loudest?



- (a) A
- (b) B
- (c) C
- (d) D

12. Identify X and Y in the given flow chart.



- (a) X-Erythrocytes, Y-Leucocytes
- (b) X-Granulocytes, Y-Granulophils
- (c) X-Granulocytes, Y-Agranulocytes
- (d) X-Agranulophils, Y-Granulocytes

13. A student mixed a small amount of iron filings and sulphur powder in a dish. He could not affect the separation by simple hand-picking. Which liquid will you suggest to affect the separation?

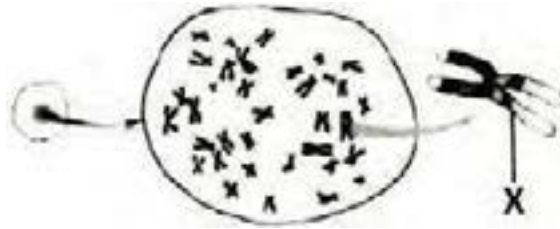
- (a) Carbon disulphide
- (b) Cold water
- (c) Boiling water
- (d) Kerosene

14. A sample of pure water, irrespective of its source contains 11.1% hydrogen and 88.9% oxygen. The data supports

- (a) law of constant proportions
- (b) law of conservation of mass
- (c) law of reciprocal proportions
- (d) law of multiple proportions

Continue on next page.....

15. The diagram below shows a magnified view of a particular part of a human cell. Name the part labelled X.



- (a) Ribosome
(b) Chromosome
(c) Nucleoplasm
(d) Mitochondrion
16. Which of the following helps in increasing the width and the girth of the plants?
(a) Apical meristem
(b) Lateral meristem
(c) Intercalary
(d) Permanent tissue

Question no. 17 to 20 are Assertion-Reasoning based questions.

17. **Assertion :** An object may have acceleration even if it is moving with uniform velocity.
Reason : An object may be moving with uniform velocity but it may be changing its direction of motion.
(a) Both assertion and reason are true and reason is the correct explanation of assertion.
(b) Both assertion and reason are true but reason is not the correct explanation of assertion.
(c) Assertion is true but reason is false.
(d) Assertion is false but reason is true.
18. **Assertion :** A rocket works on the principle of conservation of linear momentum.
Reason : For two bodies system when there is a change in momentum of one body, the same change occurs in the momentum of the second body but in the opposite direction.
(a) Both assertion and reason are true and reason is the correct explanation of assertion.
(b) Both assertion and reason are true but reason is not the correct explanation of assertion.
(c) Assertion is true but reason is false.
(d) Assertion is false but reason is true.
19. **Assertion :** An object floats if it displaces an amount of liquid whose weight is greater than the actual weight of the object.
Reason : During floatation an object experiences no net force in the downward direction.
(a) Both assertion and reason are true and reason is the correct explanation of assertion.
(b) Both assertion and reason are true but reason is not the correct explanation of assertion.
(c) Assertion is true but reason is false.
(d) Assertion is false but reason is true.

20. **Assertion :** A light body and heavy body have same momentum. Then they also have same kinetic energy.
Reason : Kinetic energy depends on mass of the body.
- (a) Both assertion and reason are true and reason is the correct explanation of assertion.
(b) Both assertion and reason are true but reason is not the correct explanation of assertion.
(c) Assertion is true but reason is false.
(d) Assertion is false but reason is true.

SECTION-B

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

21. How will you separate a mixture of common salt, camphor and iron filings. Describe the process.
or
How can you test the purity of a given substance ?
22. Write the postulate given by the Indian philosopher Maharishi Kanad.
23. What is lacking in a virus which makes it dependant on a living cell to multiply?
24. How can a person lie on a bed of nails without getting hurt as shown in the figure?



25. Give two practical applications of the reflection of sound waves.
or
What is a stethoscope? Name the principle on which a stethoscope works.
26. What are the major group of activities involved for improving of crop yields?

SECTION-C

Question no. 27 to 33 are short answer questions.

27. Is it not proper to regard the gaseous state of ammonia as vapours ? Explain.

28. Give some examples where the property : malleability and ductility of metals are used in our life.
29. How does fungi and bacteria can withstand much greater changes in the surrounding medium than animal cells?



or

Describe the role played by the lysosomes. Why are these termed as suicidal bags?

30. What are characteristic structural features of meristematic cells?
31. Why is the motion in a circle at constant speed called accelerated motion?
32. Distinguish between work, energy and power. State the SI units for each of these quantities.
- or**
- (i) What is a closed system?
(ii) State the law of conservation of energy.
33. How moths of certain families are able to escape captures from bats? What is the range of frequencies associated with :
(a) infrasound?
(b) ultrasound?

SECTION-D

Question no. 34 to 36 are Long answer questions.

34. Write down the difference between isotopes and isobars.

or

An element ${}_{12}\text{X}^{24}$ loses two electrons to form a cation which combines with the anion of element ${}_{17}\text{Y}^{35}$ formed by gaining an electron.

- (i) Write the electronic configuration of element X.
(ii) Write the electronic configuration of the anion of element Y.
(iii) Write the formula for the compound formed by combination of X and Y.
35. Explain the structure of a nervous tissue with details about its location and function.
- or**
- Explain plant tissue in detail.
36. Write a paragraph in your own words on each of the following.
(a) Preparation of soil,
(b) Sowing,
(c) Weeding,
(d) Threshing

SECTION-E

Question 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. The theory proposed in the year 1803 considered the atom to be the smallest indivisible constituent of all matter. The Dalton's theory could explain the law of conservation of mass, law of constant composition and law of multiple proportions known at that time. However, towards the end of nineteenth century, certain experiments showed that an atom is neither the smallest nor indivisible particle of matter as stated by Dalton. It was shown to be made up of even smaller particles. These particles were called electrons, protons and neutrons. The electrons are negatively charged whereas the protons are positively charged. The neutrons on the other hand are uncharged in nature. You will now learn about the discovery of the charged subatomic particles.



- (i) Who discovered electron ?
- (ii) Which of the particle has a charge of +1 and a mass of 1 amu ?
- (iii) Is the mass of electron and proton equal?
- (iv) Who discovered protons?

or

- (v) Which subatomic particle is present in the nucleus of an atom?

38. It is necessary for both plants and animals to perform the necessary life processes for their survival. Division of labour within their body has helped to reduce the workload from a single cell. It increases the cell efficiency and ensures greater organization within the body of an organism. Hence organism can easily survive in the given or changing surrounding conditions.

However, the structure of plant and animal tissues is quite different. This is largely because of the functions they perform and type of external environment they are subjected to. For example, plants are not as mobile as animals. They are fixed at a place. So they require less energy than animals. But they do require supportive tissues which provide mechanical strength to the body of the plant and require less or no energy (i.e., they are made of dead cells). Animals, on the other hand, have more complex structural organization as compared to plants.

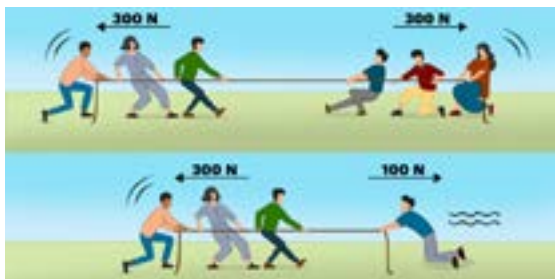
Plants grow indefinitely for their whole life while animals grow upto a given period of time. Growth of plants occurs due to the presence of meristematic tissues in root and shoot apex. However, in animals, growth of body is quite uniform and proportionate to all body parts. Hence animals don't possess any growing and non growing regions in their body.

- (i) Which meristem helps in increasing the girth??
- (ii) Which tissues provides flexibility and mechanical support to the plant organs?
- (iii) When parenchyma containing air cavities are called?
- (iv) What is the wall of sclerenchyma cells made up of?

or

- (v) Which types of cells is most likely to divide?

39. When two or more forces act simultaneously on a body in same or different direction then the overall effect of these forces on the body is known as resultant force. In other words, resultant force is that force which would produce the same effect on the body as that produced by a number of forces acting simultaneously on the same body. When the resultant of a number of forces acting simultaneously on an object is non-zero, then the forces are said to be unbalanced forces.



Unbalanced forces can change the state of rest, state of uniform motion, speed or direction of a body. When the resultant of a number of forces acting simultaneously on an object is zero, then the forces are said to be balanced forces. For example, in the game of tug of war, when both the teams exert equal force on the rope in opposite direction, the rope does not move at all. This is because, forces of equal magnitude, acting in opposite direction, cancel each other's effect. Hence the forces are balanced forces. The balanced forces do not cause any effect on the body, except change in shape and size of the body. You can compress a balloon or stretch a rubber band by exerting equal and opposite forces by both your hands. In case of rolling of a chapati, reaction force exerted by the surface on which chapati is rolled, is equal and opposite to that exerted by rolling pin, so that shape and size of chapati can be varied.

- (i) Can balanced forces deform a body?
 - (ii) Can balanced forces accelerate a body?
 - (iii) What are the effects of unbalanced force?
- or**
- (iv) Can balanced forces have any effect on a body?

□□□□□□

DOWNLOAD INDIA'S BEST STUDY MOBILE APP

- 30 Sample Paper with Solutions
- Chapterwise Question Bank of All Subject
- Previous 15 Years Solved Papers
- NCERT Solutions
- Case Study Questions with full Solutions
- **Word File of Material for Teachers**

Search by NODIA on Play Store to Download App

Add 89056 29969 in Your Class Whatsapp Group to Get Link