BIRLA BHARATI

PRE MID TERM EXAMINATION 2022

SCIENCE (086)

CLASS IX

Time: 1hr 30 mins **Max. Marks 50**

General instructions:

- There are 21 questions in all.
- All questions are compulsory.
- Marks for each question are indicated against it.
- The question paper comprises four sections – A, B, C ,D and E .
- Section A - Questions no. 1 to 9- all questions or part are of one mark each. These questions comprise of MCQ questions , objective questions and source based short questions. Answer to these questions should be given in one word or one sentence.
- Section B – Question no. 10to 12 are short answer type questions, carrying 2 marks each.
- Section C – Question no. 13-15 are short answer type question, carrying 3 marks each.
- Section D – Question no. 16 to 18 are cased based with short answer part questions, carrying 3 marks.
- Section E – Question no. 19 to 21 are long questions, carrying 5 marks each.

There is no overall choice in the question paper. However, internal choices have been provided in question no 19 to 21 of Section E.

- Draw diagrams where ever necessary

SECTION-A

1. Which of the following are covered by a single membrane?
(a) Mitochondria
(b) Vacuole
(c) Nucleus
(d) Plastids 1

2. Newton's third law of motion explains the two forces namely 'action' and 'reaction' come into play when the two bodies are in contact with each other. These two forces:
(a) Always act on the same body
(b) Always act on the different bodies in opposite directions
(c) Have same magnitude and direction
(d) Acts on either body at normal to each other. 1

3. Seema visited a Natural Gas Compressing Unit and found that the gas can be liquefied under specific conditions of temperature and pressure. While sharing her experience with friends she got confused. Help her to identify the correct set of conditions.

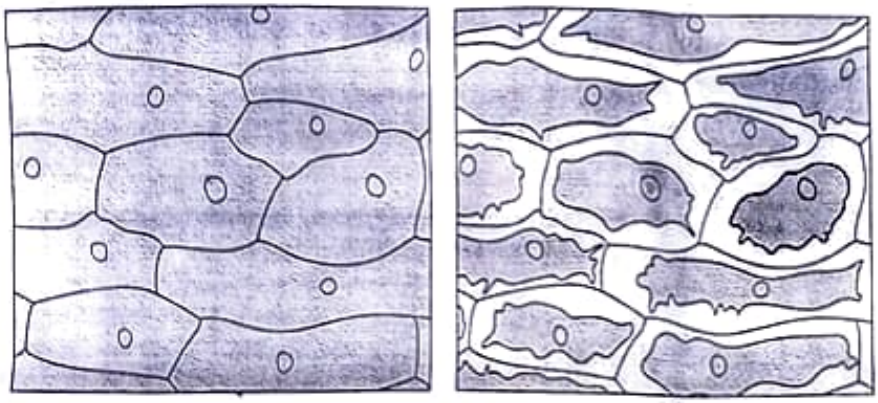
(a) Low temperature, low pressure
(b) High temperature, low pressure
(c) Low temperature, high pressure
(d) High temperature, high pressure . 1

4. The average velocity of a complete circular path is 1 1

5. Which kind of plastid is more common in
(a) seeds that produces oil?
(b) flowers and fruits? 1

6. The forces of attraction between the particles are in solids . 1

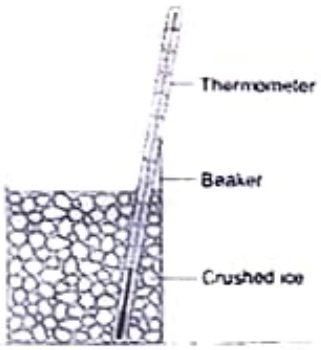
7. Preetha was observing live cells of onion in the biology laboratory and she observed cell wall, cytoplasm and nucleus clearly. Suddenly her friend who was doing the chemistry experiment spilled a few drops of salt water on the slide after some time, Preetha observed the slide and found some changes which is given below. Observe the figure and answer the following question.



i. Why did the onion cells shrink when salt water spilled over it? 1

ii. What is the phenomenon known as? 1

8. In an experimental activity, crushed ice was taken in a beaker. A thermometer is fitted in such a way that its bulb was thoroughly surrounded by ice. The beaker is now slowly heated and temperature was regularly noted. Temperature rises gradually as the heating is continued and becomes constant when ice starts changing into liquid



i) What name is associated with conversion of ice into water? ½

ii) What specific name is given to the constant temperature? ½

9. The following distance time table of an object is given.

Time in second	Distance in metre
0	0
1	1
2	8
3	27
4	64
5	125
6	216

(i) What conclusion can you draw about the acceleration? 1

(ii) What do you infer about the force acting on the object? 1

SECTION-B

10. (i) Why is plasma membrane called as selectively permeable membrane?

(ii) Lysosomes are a kind of waste disposal system of the cell. Explain the statement with valid reason. 2

11. (i) A motorcyclist drives from A to B with a uniform speed of 30 km/h and return from B to A with a uniform speed of 20 km /h. Find Average speed of the car.

(ii) An object is thrown vertically upward. What is its momentum at the highest point? 2

12. Why can liquids and gases be compressed where as it is difficult to compress solids? 2

SECTION-C

13. Draw a labelled diagram of prokaryotic cell. List any four differences between a bacteria cell and cells of onion peel. 3

14. (i) A bullet of 10 g strikes a sand-bag at a speed of 10^3 m/s and gets embedded after travelling 5 cm. Calculate the resistive force exerted by the sand on the bullet.

(ii) All the cars are provided with seat belt. Give reason. 3

15. Comment on the following statements:
(i) Evaporation produces cooling.
(ii) Rate of evaporation of an aqueous solution decrease with increase in humidity.
(iii) Sponge though compressible is a solid. 3

SECTION- D

16. The body of all living organism is made up of cells. Cells are very minute in size and extremely complicated In structure. Each cell is basically a unit of protoplasm which is the combination of cytoplasm and nucleus. The cellular components are called cell organelles. They are present both in prokaryotic cell and the eukaryotic cell. Cell is called as structural and functional unit of life. Cells have their origin from pre-existing cells by cell division. For proper functioning of a cell cells have many cell organelles in cell cytoplasm.

i. Name the two organelles in a plant cell that contain their own genetic material and ribosomes.
(a) Lysosomes and Vacuole

(b) Mitochondria and Plastid

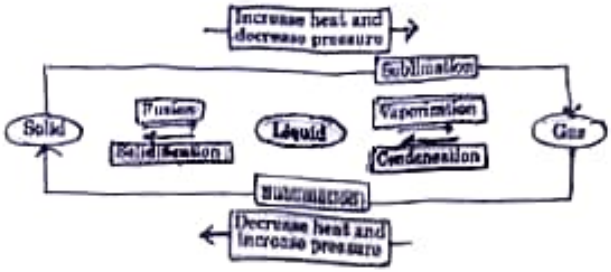
(c) Lysosomes and Centrosomes

(d) Golgi apparatus and Endoplasmic reticulum 1

ii. How many cells are produced from one mother cell when cells are divided by meiosis 1

iii. What would happen to life of a cell if Golgi apparatus is removed from a cell ? 1

17. Study the diagram given below and answer the following question.



i) Substances that undergo sublimation is called –

a) Sublimation

b) Deposition

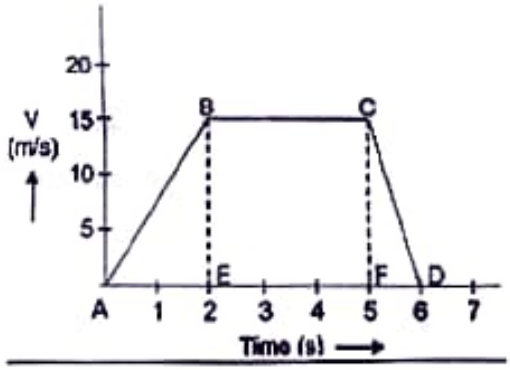
c) Heating

d) Sublime elements. 1

ii) Write one difference between evaporation and boiling. 1

iii) Define latent heat of fusion. 1

18. Shikhaj and Sharman went to Mathura through Yamuna expressway. Shikhaj started the car and accelerated the car at 15 m/s within 2 s. Sharman kept a track on the speed and the distance. He also plotted a velocity time graph of the car.



(i) The measuring device used by Sharman to keep a track on the distance cover by the car is
(a) Odometer

(b) Speedometer

(c) Barometer

(d) Multimeter . 1

(ii) In which section the car has zero acceleration? 1

(iii) During which part of the journey was the car decelerating? 1

SECTION-E

19. a) i-How is endoplasmic reticulum and membrane biogenesis interrelated?

ii- What crucial role does Endoplasmic reticulum play in the liver cells of vertebrates?

iii-Mention any two differences between the different kinds of Endoplasmic reticulum.

b) State any two reasons for plant cells to have large central vacuole. 5

OR

Answer the following questions .

i- Mitochondria is called as power house of the cell. Substantiate your answer with valid reasons.

ii-It was observed that when a fungi cell is placed in very dilute external medium it accumulates water and swells but does not burst. How does it protect it from bursting?

iii-Why do nuclear membranes have pore?

20. Design an experiment to show that ammonium chloride undergoes sublimation. 5

OR

Give one reasons to justify—

(i) Water at room temperature is a liquid.

(ii) An iron almirah is a solid at room temperature.

(iii) Water kept in an earthen pot (matka) become cool during summer.

(iv) We are able to sip hot tea or milk faster from a saucer than a cup.

(v) The smell of hot sizzling food reaches you from several meters away.

21. i) Derive graphically the third equation of motion.

(ii) An object starting from rest travels 20 m in first 2 s and 160 m in next 4 s. What will be the velocity after 7 s from the start? 5

OR

(i) Two balls A and B of masses 'm' and '2m' are in motion with velocities '2v' and 'v' respectively. Find the ratio of their (a) inertia. (b) momentum .

(ii) An object of mass 1 kg travelling in a straight line with a velocity of 10 m/s collides with and sticks to a stationary wooden block of block 5 kg. Then they both move off together in the same straight calculate the total momentum just before and after the impact. Also calculate the velocity of the combined object.