PT-2

HALF YEARLY EXAMINATION

SCIENCE

CLASS IX **Time : 3 hrs.**

Mark : 80

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 questions carrying 02 marks each. Answers to these questions should 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 in the range of 50 to 80 words.

vi) 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.

vii) Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

SECTION - A **20 × 1 = 20**

1. **Match the following:**

A	B
1) Fusion	a) Change of liquid state into gaseous state
2) Vaporisation	b) Change of liquid state into solid state
3) Condensation	c) Change of vapour state into liquid state
4) Solidification	d) Change of solid state into liquid state

a) 1-A, 2-C, 3-B, 4-D b) 1-B, 2-D, 3-A, 4-C

c) 1-D, 2-A, 3-C, 4-B d) 1-C, 2-B, 3-D, 4-A

2. To prepare iron sulphide, by heating a mixture of iron filings and sulphur powder, we should use a

a) Copper dish b) China dish

c) Watch glass d) Petri dish

3. What is the mass of 0.5 moles of a Hydrogen atom?

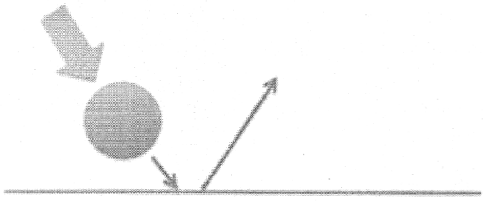
a) 1 g b) 0.5 g c) 1.5 g d) 2.0 g

4. Lysosomes are formed by

a) SER b) Golgi apparatus

c) Plasma membrane d) RER

5. What does the given image illustrate?



a) Second law of motion

b) Law of conservation of momentum

c) Third law of motion

d) First law of motion

6. Which is not a function of epidermis?

a) Protection from adverse condition b) Transpiration

c) Conduction of water d) Gaseous exchange

7. Name the muscle which is found in visceral organs.

a) Both Serum and Plasma b) Smooth muscle

c) Blood d) Plasma

8. Impulse has the S.I. unit of .....

a) Newton b) N-s c) Joule d) m/s^2

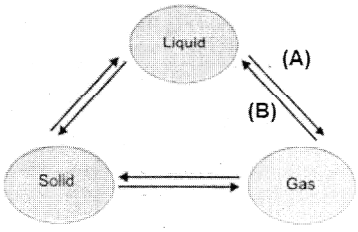
9. There is no atmosphere on moon as

a) It gets light from sun b) It is closer to the earth

c) It revolves round the earth

d) The gases have less requirement of velocity or energy to escape from its surface

10. Following figure shows three states of matter and its interconversion. Which process display in A and B?



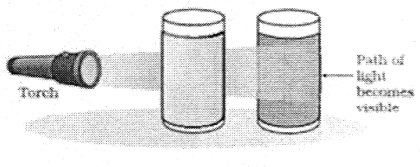
a) (A) Sublimation (B) condensation

b) (A) Fusion (B) Solidification

c) (A) Vapourisation (B) Condensation

d) (A) Fusion (B) Condensation

11. The effect shown in the image is observed through



a) Suspensions

b) Solutions

c) Colloids

d) None of these

12. A food sample turned blue-black after addition of a few drops of iodine solution. This sample contains

a) Starch b) fat c) protein d) glucose

13. Observe the following table.

Element	Cu	Cl
Mass in grams	47.25	52.75
R.a.m	63.6	35.5

So, the empirical formula for this compound is

a) Cu_2Cl b) $CuCl_2$ c) CuCl d) Cu_2Cl_2

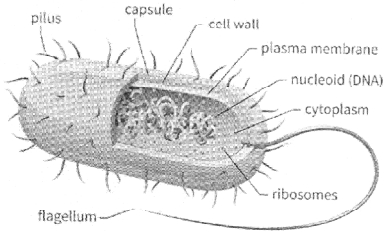
14. Which characteristic of the nucleus in the above diagram is shown?

a) Nucleoid (lacks true nucleus)

b) True nucleus

c) Nucleus without mitochondrial membrane

d) nucleus with nuclear membrane



15. Gita prepared a temporary mount of human cheek cells. She first observed under low power and the under high power of the microscope. Under high power, she must have observed.

a) More cells in darker field of view b) Fewer cells in darker field of view

c) more cells in brighter field of view d) fewer cells in brighter field of view

16. The two states of motion treated alike by Newton's first law, among A, B, C and D are

A : Rest B : Uniform motion C : Uniformly accelerated. D : Non-uniformly accelerated.

a) A, D b) A, C c) B, C d) A, B

17. Assertion (A) : True solution exhibits Tyndall effect.

Reason (R) : Particles are very large in size.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false. d) A is false but R is true.

18. Assertion (A) : Carbon-12 atom has been assigned an atomic mass of exactly 12 atomic mass units.

Reason (R) : The atomic mass unit should be equal to one-twelfth of the mass of a carbon-12 atom.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

19. Assertion (A) : Motion with uniform velocity is always along a straight-line path.

Reason (R) : In uniform velocity a motion, speed is the magnitude of the velocity and is equal to the instantaneous velocity.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

20. Assertion (A) : The weight of a body on earth is equal to the force with which the body is attracted towards the earth.

Reason (R) : The weight of a body is independent of the mass of the body.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

SECTION B

21. How much water should be mixed with 12 mL of alcohol so as to obtain a 12% alcohol solution? **2**

22. A gold sample contains 90 percent of gold and the rest copper. How many atoms of gold are present in one gram of this sample of gold? **2**

OR

What are ionic and molecular compounds? Give examples.

23. Where do the lipids and proteins constituting the cell membrane get synthesised? **2**

24. Why is the weight of an object on the moon $1/6^{th}$ its weight on the earth? **2**

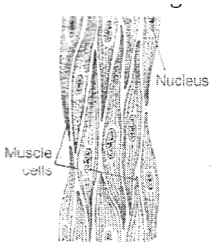
25. Define velocity and acceleration. Is it possible for a body to have zero velocity but constant acceleration? Justify your answer. **2**

26. A body of mass 1000 kg moving at a speed of 10 m/s reaches the speed of 50 m/s in 20s. Calculate the force required to do so. **2**

SECTION C

27. Differentiate between mixtures and compounds by giving appropriate examples. **3**

28. Observe the following diagram and answer the following questions. **3**



i) Identify the type of tissue mentioned in the given figure.

ii) Write any two characteristics of the type of tissue mentioned in the given figure.

iii) Where is the given tissue found in our body? What is the nature of the given tissue mentioned in the diagram?

29. The velocity of a body in motion is recorded every second as shown. **3**

Time(s)	0	1	2	3	4	5	6	7	8	9	10
Velocity (m/s)	60	54	48	42	36	30	24	18	12	6	0

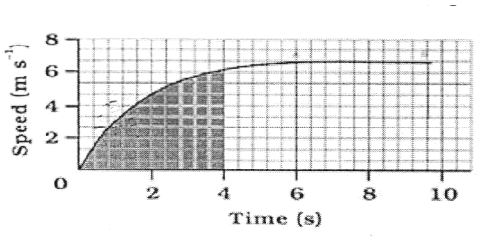
Calculate the

a) acceleration

b) distance travelled and draw the graph

OR

The speed - time graph for a car is shown in figure.



a) How far does the car travel in the first 4 seconds? Shade the area on the graph that represents the distance travelled by the car during the period.

b) Which part of the graph represents uniform motion of the car?

30. What are the effects of the following on inertia of a body?

i) If force is doubled

ii) If density is halved

iii) If volume is reduced to one third. **3**

31. Discuss the role of

i) Cellulose in cell wall

ii) Presence of deeply folded membrane in mitochondria

iii) Digestive enzymes in lysosomes. **3**

32. a) Differentiate between

i) Atom and molecule

ii) Molecular mass and formula unit mass

b) Write the chemical formula of a compound ammonium sulphate. **3**

33. How the water changes into vapours at temperature below its boiling point? List the factors affecting evaporation. Mention two examples from daily life where evaporation causes cooling. **3**

SECTION D

34. Calculate the molar mass of the following substances.

    a) Ethyne, C_2H_2

    b) Sulphur molecule, S_8

    c) Phosphorus molecule, P_4 (Atomic mass of phosphorus = 31)

    d) Hydrochloric acid, HCl

    e) Nitric acid, HNO_3 **5**

35. Why are mitochondria called powerhouse of the cell? Give three similarities and one difference between mitochondria and plastid. **5**

OR

    i) State what will happen when human red blood cells are placed in a hypotonic salt/ sugar solution.

    ii) Why plant cell shrinks when kept in a hypertonic solution?

    iii) Why lysosomes are known as suicidal bags?

36. A stone is allowed to fall from the top of a tower 100 m high and at the same time another stone is projected vertically upwards from the ground with a velocity of 25 ms^{-1}. Calculate when and where the two stones will meet. **5**

SECTION E

37. **Read the passage and answer the following questions.** **4**

Everything in this universe is made up of material “matter”. The air we breathe, the food we eat, stones, clouds, stars, plants and animals, even a small drop of water or a particle of sand - everything is matter. When we make tea, coffee or lemonade, particles of one type of matter get into the spaces between particles of the other. This shows that there is enough space between particles of matter. Particles of matter are continuously moving, that is, they possess what we call kinetic energy, particles of matter have a force acting between them. This force keeps the particles together. The strength of this force of attraction varies from one kind of matter to another.

    i) Naphthalene balls disappear with time without leaving any solid. Give reason.

    ii) What happens when salt is dissolved in water?

    iii) Which of the following has the strongest interparticle forces at room temperature?

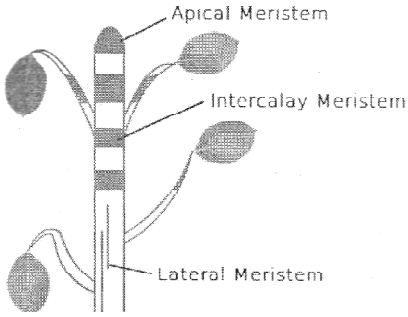
        a) oxygen b) water c) bromine d) iron

    iv) As a result of increase in temperature, what happens to the energy of the particles?

38. **Read the passage and answer the following questions.** **4**

The tissue is a group of cells having similar origin, structure & function. Study of tissues is called Histology. In unicellular organism (Amoeba) single cell performs all basic functions,

whereas in multi-cellular organisms (Plants and Animals) shows division of labour as Plant tissue & Animal tissues. Plant tissues are two types: Meristematic & Permanent tissues.



Meristematic tissue: The meristems are the tissues having the power of cell division. It is found on that region of the plant which grows.

Following are the types of Meristems:

The Apical meristems - It is present at the growing tip of the stem and roots and increases the length.

The lateral meristems - It present at the lateral side of stem and root (cambiun) and increases the girth.

The intercalary meristems - It present at internodes or base of the leaves and increases the length between the nodes.

i) Which tissue help in the secondary growth of the plant?

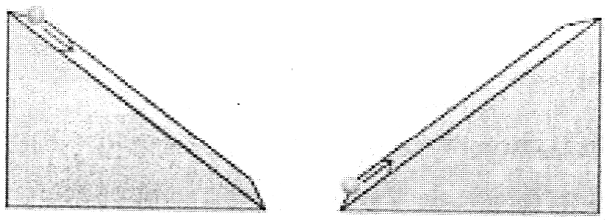
ii) In what region of the plant does intercalary meristematic growth occur?

iii) What is meristematic tissue? Where does these tissue mostly found in a plant?

iv) Why cambium is called lateral meristem?

39. **Read the passage and answer any four questions.** **4**

When a marble rolls down an inclined plane, its velocity increases. The marble falls under the unbalanced force of gravity as it rolls down and attains a definite velocity by the time it reaches the bottom.



i) When a rubber balloon held between the hands is pressed, its shape changes. Why?

ii) Which of the following effect cannot be produced by an unbalanced force acting on a body?

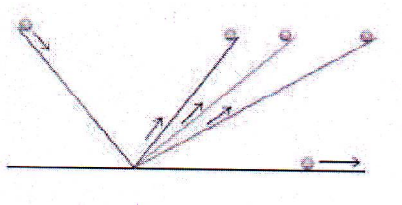
a) Change in speed of the body

b) Change in shape of the body

c) Change in direction of motion of the body

d) Change in state of rest of the body

iii) Which of the following statement is correct for the given diagram?



I) If the inclinations of the planes on both sides are equal then the marble will climb the same distance that it covered while rolling down.

II) If the right-side plane were ultimately made horizontal.

III) If the angle of inclination of the right-side plane were gradually decreased, then the marble would travel further distances till it reaches the original height.

IV. The marble would stop after it is release.

a) I, II & III b) ii & IV c) III & II d) I & IV

iv) An object of mass 2 kg is sliding with a constant velocity of 4 m/s on a frictionless horizontal table. Find the force required to keep the object moving with the same velocity.