ROLL NUMBER					

SET	A

INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2022
SCIENCE 086

CLASS : IX
DATE: 19-09-2022

TIME ALLOTED : 3 HRS.
MAXIMUM MARKS: 80

GENERAL INSTRUCTIONS:

(i) The question paper comprises two sections A and B. there are 35 questions in the question paper,
(ii) Answer all the questions
(iii) Section A - Questions from 1 to 20. All questions are of one mark each. This section contains case study questions, very short answer type questions and assertion-reason type questions.
(iv) Section B - Questions from 21 to 26 are short answer type questions carrying 2 marks each, questions from 27 to 32 are short answer type questions carrying 3 marks each, questions from 33 to 35 are long answer type questions carrying 5 marks each.
(v) There is no overall choice. However, internal choices have been provided in some questions. Student has to attempt only one of the choices in such questions.

SECTION – A

1. What is the name given to the product of mass and velocity of a body? 1

2. The force required to produce an acceleration of 2.5m/s² in a body of mass 4 Kg is……N. 1
   a) 10 c) 5
   b) 12.5 d) 2.5

3. Four iron balls A, B, C and D have mass 1Kg, 3Kg, 2 Kg and 4 Kg. Which of the balls has highest inertia? 1

4. In a tug of war match, the rope does not move in any direction. Name the force acting on the rope. 1

5. A particle is moving in a circular path of radius "r". The displacement after half a circle would be… 1
   a) Zero c) πr
   b) 2r d) 2πr

6. Name a physical quantity that corresponds to the rate of change of velocity. 1

7. A cyclist travelling with a constant speed on a circular path is an example of..... 1

a) Circular motion
b) Uniform circular motion
c) Linear motion
d) Vibratory motion

8. The substance present in larger proportion in a solution is called ------- 1

9. What is a molecule? 1

10. Find the odd one out 1
Boron, Carbon, Water, oxygen.

11. Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as: 1
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

Assertion: When a beam of light is passed through a colloidal solution kept in a dark place the path of the beam becomes visible.
Reason: Light gets scattered by the colloidal particles.

12. Choose the chemical symbol for sodium 1
(a) So (b) Sd (c) NA (d) Na

13. Why the plasma membrane is called a selectively permeable membrane? 1

14. Name two structures that found in plant cells but not in animal cells. 1

15. Which chemical deposited in the cell wall of sclerenchyma makes them thicker. 1

16. **Assertion:** Mitochondria are known as 'Powerhouse of the Cell'. 1
Reason: The body uses energy which is usually found in the form of ATP's for making new chemical compounds and mechanical work of the body. Those ATP is stored in mitochondria.
a) Both Assertion and Reason are correct and reason is the correct explanation for assertion.
b) Both Assertion and Reason are correct and reason is not the correct explanation for assertion.
c) Assertion is true but Reason is false.
d) Both Assertion and Reason are false.

17. Identify the laws involved in the following situations-

(i) A body of mass 5 kg can be accelerated more easily by a force than another body of mass 50 kg under similar conditions 1

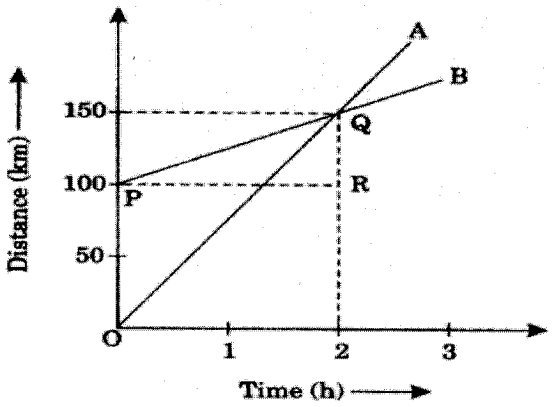
(ii) When person A standing on roller skates pushes another person B (also standing on roller skates) and makes him move to the right side, then the person A himself gets moved to the left side by an equal distance 1

(iii) If there were no friction and no air resistance, then a moving bicycle would go on moving for ever 1

(iv) When a fireman directs a powerful stream of water on a fire from a hose pipe, the hose pipe tends to go backward 1

(v) Road accidents at high speeds are much worse than road accidents at low speeds. 1

18. The distance-time graph of two trains is given below. The trains start simultaneously in the same direction.



(i) How much ahead of A is B when the motion starts? 1

(ii) What is the speed of B? 1

(iii) When and where A will catch B? 1

(iv) What is the difference between speeds of A and B? 1

(v) Is the speed of both the trains uniform or non-uniform? Justify your answer. 1

19. Read the passage and the answer the questions given, each carries one mark.

The homogeneous mixtures of two or more substances called a true solution .It consist of solute and solvent. The particle size of true solution is less than 1 nm .Suspension is a heterogeneous mixture in which the solute particle does not dissolve but remain suspended throughout the bulk of the medium .Colloid is a mixture that is actually heterogeneous but appears to be homogeneous as the particles are uniformly spread throughout the solution

(i) Which one of the following is most stable? 1

A. True solution
B. Suspensions
C. Colloids
D. Both A and B

(ii) Which type of mixture can be separated by filtration? 1

A. True solution
B. Suspensions
C. Colloids
D. All of these

(iii) Which statement is incorrect about Tyndall effect 1

A. True solution show Tyndall effect
B. Suspension show Tyndall effect
C. Colloid show Tyndall effect
D. Both B and C show Tyndall effect

(iv) Which is the correct order of stability of solution 1

A. True < Colloid<Suspension
B. Colloid< Suspension<True
C. Colloid<True<Suspension
D. Suspension<Colloid<True

(v) Mixture can be 1

A. Homogeneous
B. Heterogeneous
C. Both A and B
D. Pure Substance

20. Cells are the basic building blocks of all living things. The human body is composed of trillions of cells. They provide structure for the body, take in nutrients from food, convert those nutrients into energy, and carry out specialized functions. Cells also contain the body's hereditary material and can make copies of themselves. Cells have many parts, each with a different function. Some of these parts, called organelles, are specialized structures that perform certain tasks within the cell.

(i) Who discovered the cell? 1

a) Robert Hooke b) Leeuwenhoek c) Robert Brown d) T. Schwann

(ii) Who discovered the nucleus in the cell? 1

a) T. Schwann b) Robert Brown c) M. Schleiden d) Robert Hooke

(iii) Which of the following is the main constituent of cell wall? 1

a) Proteins b) Lipids c) Lipoproteins d) Cellulose

(iv) A cell is placed in solution swells up. The solution is 1

a) Hypertonic b) Isotonic c) Hypotonic d) Both a and b

(v) The structural or functional unit of life is 1

a) Tissue b) Organ c) Organ System d) Cell

Section – B

21. Differentiate acceleration from velocity. 2

22. What is saturated solution? 2

23. Define law of constant proportions. 2

24. Write any two differences between physical change and chemical change. 2

25. Define aerenchyma. Mention its function in plants. 2

26. Why are lysosomes known as suicide bags? 2

27. Distinguish between plant cell and animal cell 3

28. a) State Newton's first law of motion. 3
    b) A truck starts from rest and rolls down a hill with constant acceleration. It travels a distance of 400 m in 20s. Find the force acting on it if its mass is 7000kg.

OR

a) When a person jumps out of a boat, the boat moves backwards. Explain why?
b) Define 1 Newton.

29. (i) What is an atom? 3
(ii) What do you mean by IUPAC?
(iii) Hydrogen and oxygen combine in the ratio of 1:8 by mass to form Water .What mass of oxygen gas would be required to react completely with 3 gram of hydrogen gas?

30. Write any three differences between colloidal, solution and suspension 3

OR

(i) Define compound

(ii) A solution contains 40 gram of common salt and 320 gram of water .Calculate the concentration in terms of mass by mass percentage of the solution

31. What are meristematic tissues? Explain with the help of suitable diagram. 3

32. Write a short note on parenchyma. 3

OR

Distinguish between xylem and phloem.

33. Draw velocity-time graph for an uniformly accelerated object. Using velocity-time graph, derive $v^2 - u^2 = 2aS$. 5

OR

(i) Define uniform acceleration.

(ii) A car starts from rest and attains a velocity of 10 m/s in 40 seconds. The driver applies brakes and slows down the car to 5 m/s in 10 seconds. Find the acceleration of the car in both the cases.

34. (i) Define law of conservation of mass 5

(ii) Write all six postulates of Dalton's atomic theory

OR

(i) In a reaction 5.3 g of sodium carbonate reacted with 6 g of ethanoic acid. The products were 2.2 g of carbon dioxide, 0.9 g water and 8.2 g of sodium ethanoate. Show that these observations are in agreement with the law of conservation of mass.

(ii) Which postulates of Dalton's atomic theory can explain the law of definite proportions?

(iii) Which postulate of Dalton's atomic theory is the result of the law of conservation of mass?

35. Describe the structure of mitochondria with the help of neat labeled diagram. 5

OR

Draw a well labeled diagram of nucleus and explain its various parts.

******END OF THE QUESTION PAPER******

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SET	B

INDIAN SCHOOL MUSCAT

HALF YEARLY EXAMINATION 2022

SCIENCE 086

CLASS : IX

DATE: 19-09-2022

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(ii) Answer all the questions
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(v) There is no overall choice. However, internal choices have been provided in some questions. Student has to attempt only one of the choices in such questions.

SECTION - A

1. What is the SI unit of momentum? 1

2. The force required to produce an acceleration of $4m/s^2$ in a body of mass 6 Kg is……N. 1

   a) 26
   b) 1.5
   c)
   c) 24
   d) 4

3. The mass of object A is 6kg whereas that of another object B is 8 kg. Which of the two objects A or B has more inertia? 1

4. In a tug of war match, the rope does not move in any direction. Name the force acting on the rope. 1

5. Is displacement a scalar quantity? 1

6. Name a physical quantity that corresponds to the rate of change of velocity 1

.

7. A cyclist travelling with a constant speed on a circular path is an example of..... 1

a) Circular motion
b) Uniform circular motion
c) Linear motion
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8. The substance present in larger proportion in a solution is called ------- 1

9. What is a molecule? 1

10. Find the odd one out 1

Boron, Carbon, Water, oxygen.

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Assertion: When a beam of light is passed through a colloidal solution kept in a dark place the path of the beam becomes visible.

Reason: Light gets scattered by the colloidal particles.

12. Choose the chemical symbol for sodium is 1

(a) So (b) Al (c) NA (d) Na

13. Name the functional unit of DNA that carries genetic information. 1

14. Name two structures that found in plant cells but not in animal cells. 1

15. Which chemical deposited in the cell wall of sclerenchyma makes them thicker. 1

16. **Assertion:** Mitochondria are known as 'Powerhouse of the Cell'. 1
Reason: The body uses energy which is usually found in the form of ATP's for making new chemical compounds and mechanical work of the body. Those ATP is stored in mitochondria.
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17. Identify the laws involved in the following situations-

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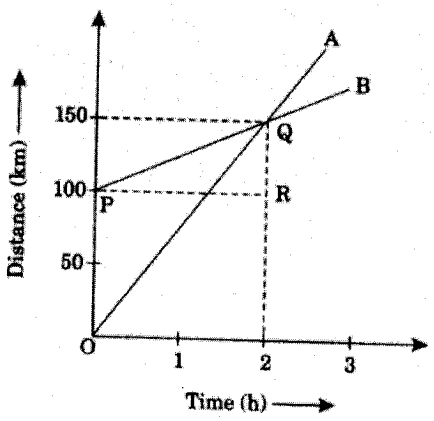

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(v) Is the speed of both the trains uniform or non-uniform? Justify your answer. 1

19. Read the passage and the answer the questions given, each carries one mark.

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1

(i) Which one of the following is most stable?

A. True solution
B. Suspensions
C. Colloids
D. Both A and B

(ii) Which type of mixture can be separated by filtration? 1

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20. Cells are the basic building blocks of all living things. The human body is composed of trillions of cells. They provide structure for the body, take in nutrients from food, convert those nutrients into energy, and carry out specialized functions. Cells also contain the body's hereditary material and can make copies of themselves. Cells have many parts, each with a different function. Some of these parts, called organelles, are specialized structures that perform certain tasks within the cell.

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(v) The structural or functional unit of life is 1

a) Tissue b) Organ c) Organ System d) Cell

Section - B

21. Differentiate acceleration from velocity. 2

22. What is unsaturated solution? 2

23. Define compound 2

24. Write any two differences between physical change and chemical change. 2

25. Define aerenchyma. Mention its function in plants. 2

26. Name the process by which 2

(a) Oxygen moves in and out of the cell,

(b) Water moves in and out of the cell.

27. Distinguish between plant cell and animal cell. 3

28. (i) State Newton's first law of motion. 3
(ii) A truck starts from rest and rolls down a hill with constant acceleration. It travels a distance of 400 m in 20s. Find the force acting on it if its mass is 7000 kg.

OR

(i) When a person jumps out of a boat, the boat moves backwards. Explain why?
(ii) Define 1 Newton.

29. (i) What is an atom? 3

(ii) What do you mean by IUPAC?

(iii) Hydrogen and oxygen combine in the ratio of 1:8 by mass to form

Water .What mass of oxygen gas would be required to react completely with 3 gram of hydrogen gas?

30. Write any three differences between colloidal, solution and suspension 3

OR

(i) Define element

(ii) A solution contains 20 gram of common salt and 160 gram of water .Calculate the concentration in terms of mass by mass percentage of the solution

31. What are meristematic tissues? Explain with the help of suitable diagram. 3

32. Write a short note on collenchyma. 3

OR

Distinguish between xylem and phloem.

33. Draw velocity-time graph for an uniformly accelerated object. Using velocity-time graph, derive $v^2 - u^2 = 2aS$. 5

OR

(i) Define uniform acceleration.

(ii) A car starts from rest and attains a velocity of 10 m/s in 40 seconds. The driver applies brakes and slows down the car to 5 m/s in 10 seconds. Find the acceleration of the car in both the cases.

34. (i) Define law of constant proportion 5

(ii) Write all six postulates of Dalton's atomic theory

OR

(i) In a reaction 5.3 g of sodium carbonate reacted with 6 g of ethanoic acid. The products were 2.2 g of carbon dioxide, 0.9 g water and 8.2 g of sodium ethanoate. Show that these observations are in agreement with the law of conservation of mass.

(ii) Which postulates of Dalton's atomic theory can explain the law of definite proportions?

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35. Describe the structure of mitochondria with the help of neat labeled diagram. 5

OR

Draw a well labeled diagram of nucleus and explain its various parts.

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SET	C

INDIAN SCHOOL MUSCAT

HALF YEARLY EXAMINATION 2022

SCIENCE 086

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SECTION - A

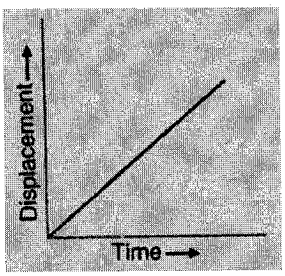
1. Name a physical quantity whose SI unit is Kg m/s 1

2. What is the acceleration produced by a force of 12N exerted on an object of mass 3 kg? 1
   a) $4m/s^2$ c) $0.25m/s^2$
   b) $3m/s^2$ d) $0.5m/s^2$

3. Four iron balls A, B, C and D have mass 1Kg, 3Kg, 2 Kg and 4 Kg. Which of the balls has highest inertia? 1

4. If the resultant of all the forces acting on a body is zero then the forces are ….. 1
   a) Balanced c) frictional
   b) Unbalanced d) centrifugal

5. What conclusion can you draw about the velocity of a body from the displacement-time graph shown below 1



6. Name a physical quantity that corresponds to the rate of change of velocity. 1

7. A cyclist travelling with a constant speed on a circular path is an example of..... 1

a) Circular motion
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8. The substance present in smaller proportion in a solution is called ----- 1

9. What is a molecule? 1

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Reason: Light gets scattered by the colloidal particles.

12. Choose the chemical symbol for sodium is 1
(a) So (b) Sd (c) NA (d) Na

13. Name the plastid which helps in colouration to flowers and fruits for attracting insects/animals to perform pollination and dispersal respectively. 1

14. What is osmosis? 1

15. Which chemical deposited in the cell wall of sclerenchyma makes them thicker. 1

16. **Assertion:** Mitochondria are known as 'Powerhouse of the Cell'. 1

Reason: The body uses energy which is usually found in the form of ATP's for making new chemical compounds and mechanical work of the body. Those ATP is stored in mitochondria.

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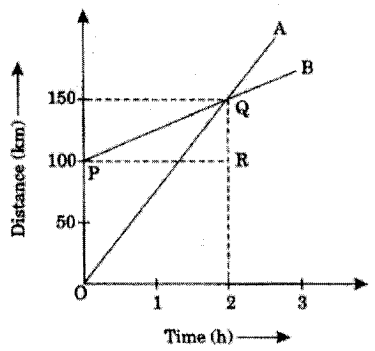

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a) Hypertonic b) Isotonic c) Hypotonic d) Both a and b

(v) The structural or functional unit of life is 1

a) Tissue b) Organ c) Organ System d) Cell

Section - B

21. Differentiate acceleration from velocity. 2

22. What is saturated solution? 2

23. Define law of constant proportions. 2

24. Write any two differences between element and compound. 2

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26. Name the process by which 2
(a) Oxygen moves in and out of the cell,
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27. Distinguish between prokaryotic cell and eukaryotic cell. 3

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(ii) A truck starts from rest and rolls down a hill with constant acceleration. It travels a distance of 400 m in 20s. Find the force acting on it if its mass is 7000 kg

OR

(i) When a person jumps out of a boat, the boat moves backwards. Explain why?
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OR

(i) Define concentrated solution.

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32 Write a short note on collenchyma. 3

OR

Which elements of xylem
i) Help in transport of water and minerals.
ii) Stores food.
iii) Provide mechanical support.

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OR

a. Define uniform acceleration.
b. A car starts from rest and attains a velocity of 10 m/s in 40 seconds. The driver applies brakes and slows down the car to 5 m/s in 10 seconds. Find the acceleration of the car in both the cases.

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