

Class : IX
Max. Marks : 40

No. of Questions : 80
Time : 2.45 Hrs.

INSTRUCTIONS

1. *The question paper is given as Booklet.*
2. *All the questions are multiple choice questions.*
3. *Use blue / black ink ball point pen to answer all the questions in OMR sheet.*
4. *Identify the correct answer and bubble relevant circle given against the question number in OMR sheet.*

Ex : If the answer is 3 to the question bubble as shown ① ② ● ④


5. *The answer paper will not be valued if ✓, ✗ symbols are used as answers.*
 6. *The answer paper is not valued for over-writing and bubbling more answers than one.*
 7. *Answer all the questions in the given time and hand over the OMR sheet to the invigilator.*
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1. Read the passage given below :

Inertia is a property of matter that resists changes in its state of motion or rest. It depends on the mass of the object.

Arrange the following animals in the increasing order of inertia :

- | | |
|----------------|----------------|
| a. Elephant | b. Lion |
| c. Dog | d. Rat |
| (1) c, d, a, b | (2) a, b, c, d |
| (3) d, c, b, a | (4) b, a, c, d |

2.  Five pendulums are suspended as shown in figure. If first pendulum is pulled a side and released you will see that pendulum 5 will move a side, if you do it with first two, last two will move and so on.

What is the principle involved in the above activity ?

- (1) Law of conservation of charge
(2) Law of conservation of mass
(3) Law of conservation of energy
(4) Law of conservation of momentum

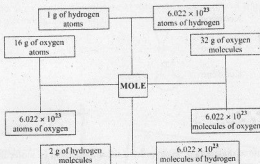
3.

Dispersian medium	Dispersed phase	Colloide type
gas	liquid	aerosol
liquid	x	sol
solid	liquid	gel

In the above table 'x' can be replaced by

- (1) Solid or liquid
(2) Gas
(3) Liquid
(4) Solid
4. Element is a basic form of matter that cannot be broken down into simple forms by chemical reactions. If any substance can be separated into two or more constituent parts by a chemical reaction it should be
- (1) Homogeneous mixture
(2) Compound
(3) Mixture
(4) Heterogeneous mixture

Observe the following flow chart and answer Q. No. 5 & 6.



5. Based on the above flow chart, generalised statement is

P : In any substance the no. of particles in one mole is constant.

Q : Irrespective of quantity of a matter, the no. of atoms or molecules in it is constant.

R : There is no relation between the mole and the substance.

- (1) R only
 (2) P only
 (3) Q only
 (4) P and Q

6. In the above flow chart, the number 6.022×10^{23} is

- (1) Atomic number (Z) (2) Atomic mass unit (amu)
 (3) Avagadro number (N) (4) Mass number (A)

- 7.

Shell Name	The maximum no. of electrons in a shell
K	2
L	8
M	x
N	32





In the above table 'x' can be replaced by

- (1) 18 (2) 8
 (3) 28 (4) 30

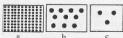
8. The standard notation of an atom is $^A_Z X$. The option which shows oxygen atom is

- (1) $^8_{16}O$ (2) $^{16}_6O$
 (3) $^{16}_8O$ (4) $^6_{16}O$

9. The diagram which represents quick evaporation among the following is

- (1)  Kerosene
 (2)  Kerosene
 (3)  Kerosene
 (4)  Kerosene

10.

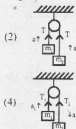
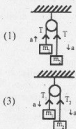


The adjacent three diagrams a, b, c represent the arrangement of molecules in three phases of water. The correct terms regarding the diagrams are

- (1) a-water b-ice c-vapour
 (2) a-vapour b-water c-ice
 (3) a-ice b-water c-vapour
 (4) a-ice b-vapour c-water
11. The distance(s) - time(t) graph which represents rainy drops which are falling from certain height with uniform velocity is



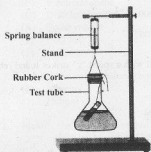
12. Which of the following represent correct diagram of atwood machine



13. Diesel - water is an immiscible mixture of solution. The diagram of apparatus is used to separate the mixture is



14.

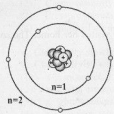


Wrongly labelled part in the above diagram is

- (1) Rubber cork
(3) Test tube

- (2) Spring balance
(4) Measuring jar

15.



- Electron
- ⊕ Proton
- Neutron

The distribution of electrons in the above diagram represents the element

- (1) Carbon
(3) Neon

- (2) Oxygen
(4) Nitrogen

16.

In the diagram regarding question number (15) the symbol '+' represent

- (1) Protons and Neutrons
(3) Protons

- (2) Electrons
(4) Neutrons

17.

The temperature of steam and hot water are at 100 °C each, then why should we prefer steam engine than hot water engine ?

- (1) Steam is in gaseous state and water in liquid state.
 (2) Steam has higher heat energy than hot water.
 (3) Steam has more volume than hot water.
 (4) Steam has less heat energy than hot water.

18. A car covers half the distance at a speed of 60 km h^{-1} and the other half at a speed of 40 km h^{-1} . The average speed of the car is
- (1) 48 km h^{-1} (2) 0
 (3) 44.44 km h^{-1} (4) 50 km h^{-1}
19. A boy of mass 30 kg uses a rope to climb which bears nearly 600 N . What is the maximum acceleration with which he can climb safely?
- (1) 0 (2) 18000 ms^{-2}
 (3) 0.05 ms^{-2} (4) 20 ms^{-2}
20. A ball of mass 'm' moves perpendicularly to a wall with a speed 'v' strikes it and rebounds with the same speed. The change in momentum
- (1) mv (2) 0
 (3) $\frac{1}{2}mv$ (4) $2mv$
21. The amount in gr mass of solute present in 100 gr mass of solution is called concentration. If 50 gr of salt in 200 gr of water, the concentration, of that solution would be
- (1) 50% (2) 20%
 (3) 25% (4) 10%
22. In hot summer Revathi gave lemonade to the guests who visited her home. The solute in that solution is/are
- (i) Water (ii) Lemon juice (iii) Sugar (iv) Salt
- (1) (ii), (iii) and (iv) (2) (i) only
 (3) (i) and (ii) (4) (iii) and (iv)
23. The molecular mass of a substance is the sum of the atomic masses of all the atoms in a molecule of the substance. If the atomic masses of hydrogen, sulphur and oxygen are 1, 32, 16 successively then the molecular mass of sulphuric acid is
- (1) 97 u (2) 89 u
 (3) 98 u (4) 49 u
24. The sum of no. of protons and no. of neutrons is called mass number. The no. of neutrons present in the sodium atom whose atomic number is
- (1) 34 (2) 23
 (3) 11 (4) 12

25. Solids, liquids and gases diffuse into liquids and rate of diffusion of gases is higher than liquids and solids because
- (1) low mass and high volume of gas molecules.
 - (2) higher speed of gas molecules and greater space between them.
 - (3) greater space between the gas molecules and high temperature.
 - (4) low mass and high speed of gas molecules.
26. Solids generally have
- (P) Indefinite shape
 - (Q) Distinct boundary
 - (R) Fixed volume
- (1) P, Q only
 - (2) P, Q, R
 - (3) Q, R only
 - (4) P only
27. Identify the only substance with all three states can be readily observed in everyday life.
- (1) Mercury
 - (2) Water
 - (3) Helium
 - (4) Wax
28. Identify the wrong one regarding the picture from the following :



- (1) Air diffuse through the syringe
 - (2) Compressibility of air through syringe
 - (3) Pressure increases inside the syringe
 - (4) Volume of air decreases in the syringe
29. x : Clothes dry slowly during rainy season.
y : Clothes dry slowly during windy day.
- (1) x is incorrect, y is correct.
 - (2) x, y both are correct.
 - (3) x, y both are incorrect.
 - (4) x is correct, y is incorrect.
30. Mithilesh wanted to find instantaneous speed of the car in which he was travelling. He should see which one of the following meters ?
- (1) Speedometer
 - (2) Thermometer
 - (3) Anaemometer
 - (4) Odometer
31. An example for a motion where the speed and direction of motion both changes continuously is
- (1) Ball moving up the inclined plane
 - (2) Whirling stone
 - (3) Ball moving down the inclined plane
 - (4) Throwing stone into the air, making some angle with the horizontal

32. Velocity : ms^{-1} :: acceleration : ?

- (1) m^{-2}s (2) ms^2
(3) ms^{-2} (4) m^2s

33. When the driver pushes the accelerator of the car, then
(1) the speed and time interval both increase.
(2) the time interval to reach the destination increases.
(3) the time interval to reach the destination decreases.
(4) the time interval to reach the destination remains the same.

34. In the adjacent graph, the velocity in ms^{-1} is



- (1) 50 ms^{-1}
(2) 2 ms^{-1}
(3) $\frac{1}{2} \text{ ms}^{-1}$
(4) Not defined.

35. A passenger in a moving train tosses a coin which falls behind him. It means the motion of the train is

- (1) Circular motion
(2) Accelerated
(3) Uniform
(4) Retarded

36. Identify the correct statement regarding Aristotle's belief.

- (1) A body continues its state of rest or uniform motion unless a net force acts on it.
(2) Any moving body continues in the state only until some external force acts on it.
(3) Any moving body naturally comes to rest.
(4) Any body which is at rest naturally starts moving.

37. Match the physical quantities given in Set-A with proper units in Set-B.

Set-A	Set-B
P. Force	x. kg ms^2
Q. Momentum	y. kg ms^{-2}
R. Impulse	z. kg ms^{-1}

- (1) P-z, Q-x, R-y
(2) P-x, Q-w, R-z
(3) P-x, Q-y, R-w
(4) P-y, Q-z, R-z

38. **Pavithra** : Action reaction pair in Newton's third law always represents forces acting on two bodies simultaneously.

Teja : Newton's first and second laws of motion apply to a single body.

- (1) Pavithra is incorrect. Teja is correct.
- (2) Both Pavithra and Teja are correct.
- (3) Both Pavithra and Teja are incorrect.
- (4) Pavithra is correct. Teja is incorrect.

39. When we drop an egg on the concrete floor it will break because

- (1) large force acts on the egg for shorter time.
- (2) large force acts on the egg for longer time.
- (3) smaller force acts on the egg for shorter time.
- (4) smaller force acts on the egg for longer time.

40. When 2.5 kg weight of hero's hand hits the villain of 80 kg who is at rest, the villain moves with 12.5 ms^{-1} and hits the transformer near by. What will be the speed of hero's hand compared to the bullet fired from the gun ? (speed of bullet fired from the gun is 370 ms^{-1})

- (1) 0
- (2) Greater than bullet speed
- (3) Less than bullet speed
- (4) Very very less than bullet speed

41. The components of a homogenous mixture are too intimately mixed up that it will be difficult to distinguish them from each other by visual observation. Example for such mixture is

- | | |
|----------------------|---------------|
| (1) Naphthalen-water | (2) Oil-water |
| (3) Kerosene-water | (4) Air |

42. Some symbols of elements are based on their English names. Some other are based on their Latin names. Which of the following elements have symbols based on Latin names ?

- | | | | |
|-------------------|------------------|------------|------------|
| (i) Sodium | (ii) Neon | (iii) Gold | (iv) Argon |
| (1) (ii) and (iv) | (2) (i) and (ii) | | |
| (3) (i) and (iii) | (4) (i) and (iv) | | |

43. In atoms electrons are distributed in different shells. The correct order of distribution of 12 electrons in Magnesium is

- | | |
|-------------|----------------|
| (1) 2, 2, 8 | (2) 2, 2, 6, 2 |
| (3) 2, 8, 2 | (4) 2, 2, 2, 6 |

44. Solubility is the measurement of amount of solute that dissolves in a solvent at a certain temperature. Factors that affect the solubility are

- | | | |
|-------------------------|-----------------------------------|------------------------------|
| (i) Temperature | (ii) Size of the solute particles | (iii) Stirring of a solution |
| (1) (i), (ii) and (iii) | (2) (i) Only | |
| (3) (i) and (ii) | (4) (ii) and (iii) | |

45. Based on atomicity match Set-A with Set-B :

Set -A	Set -B
P. Monoatomic	x. Fluorine
Q. Diatomic	y. Helium
R. Triatomic	z. Ozone
(1) P-z, Q-y, R-x	(2) P-z, Q-x, R-y
(3) P-y, Q-x, R-z	(4) P-y, Q-z, R-x

46. Colloidal solutions are heterogeneous in nature and always consist of atleast two phases, the disperse phase and the dispersion medium. Which of the following is not a colloidal solution ?

- (1) Gel (2) Ice cream
(3) Shoe polish (4) Mud water

47. The correct order in the activity to observe law of conservation of mass is

- P. Take 100 ml of silver nitrate solution in a chemical flask and 5 ml of sodium chloride in a test tube
Q. Due to reaction between these two white precipitate will form.
R. Add sodium chloride solution to silver nitrate solution.
S. Weigh the two and record the sum of their weights.
T. After reaction weigh it again and it will be equal to the previous reading.
- (1) P, S, Q, R, T (2) P, S, R, T, Q
(3) P, R, S, Q, T (4) P, S, R, Q, T

48. Uma : Mass is neither created nor destroyed during a chemical reaction.

Rama : Matter is conserved in a chemical reaction.

- (1) Both Uma and Rama are incorrect. (2) Uma is incorrect, Rama is correct.
(3) Uma is correct, Rama is incorrect. (4) Both Uma and Rama are correct.

49. Acetone - Water : Distillation :: Ammonium chloride - Salt :

- (1) Sublimation (2) Fractional distillation
(3) Sedimentation (4) Filtration

50. The combining capacity of atoms of an element with the atoms of other element is called its valency. Based on valency the odd one is

- (1) Helium (2) Oxygen
(3) Hydrogen (4) Chlorine

51. Based on scientists and their inventions match Set-I with Set-II :

Set - I	Set - II
P. Bohr-Bury	x. Existence of a nucleus
Q. Thompson	y. Maximum no. of electrons in a shell
R. Rutherford	z. Subatomic particle

(1) P-x, Q-y, R-z
(2) P-z, Q-x, R-y
(3) P-y, Q-z, R-x
(4) P-y, Q-x, R-z

52. The correct order of sentences related to preparation of super saturated solution is
P. Add one more spoon of sugar to it
Q. Add one spoon of sugar to 100 ml of water in a beaker
R. On heating the undissolved sugar dissolves to form a super saturated solution
S. It dissolves totally to form saturated solution

- (1) P, Q, R, S (2) Q, P, R, S
(3) Q, S, P, R (4) Q, R, P, S

53. \square : Sodium carbonate :: $Al_2(SO_4)_3$: Aluminium sulphate

- (1) $Na(CO_3)_2$ (2) Na_2CO_3
(3) $NaCO_3$ (4) $Na_2(CO_3)_2$

54. David : By transfer of electrons atoms – can attain octet.
Dravid : By sharing of electrons atoms – can attain octet.

- (1) Both David and Dravid are correct.
(2) David correct, Dravid incorrect.
(3) David incorrect, Dravid correct.
(4) Both David and Dravid are incorrect.

55. On mixing of dil. hydrochloric acid to the mixture of iron dust and sulphur powder we obtain two gases. One of them is hydrogen and another would be

- (1) Sulphur trioxide (2) Oxygen
(3) Sulphur dioxide (4) Hydrogen sulphide

56. Isotopes are used in the laboratory to investigate the steps of chemical reactions and medical mysteries. An isotope which is used in the treatment of Goitre is

- (1) Cobalt isotope (2) Uranium isotope
(3) Iodine isotope (4) Carbon isotope

57. Assertion (A) : We feel cool after sweating.

Reason (R) : We store water in earthen pots during summer

- (1) (A) is incorrect, (R) is correct.
(2) Both (A), (R) are correct, (R) is the correct explanation of (A).
(3) Both (A), (R) are correct, (R) is not the correct explanation of (A).
(4) (A) is correct, (R) is incorrect.

58. What happens if we remove mudguard from two wheelers, predict ?
- Mud will stick to the wheels and speed decreases.
 - Mud will not fall on the two wheeler.
 - Mud moves tangentially in all directions.
 - The look of the two wheeler increases.

59.



Observe the figure given and the wrong question regarding relative position :

- Where is the house located with respect to road ?
 - How many persons are there in the figure ?
 - On which side of the road is the tree located ?
 - On which side of the tree is the house located ?
60. **Assertion (A)** : Pace bowler Bumrah runs in from a long distance before he bowls.
Reason (R) : To acquire dynamic inertia.
- (A) is incorrect, (R) is correct.
 - Both (A), (R) are correct, (R) is correct explanation of (A).
 - Both (A), (R) are correct, (R) is not correct explanation of (A).
 - (A) is correct, (R) is incorrect.
61. **Assertion (A)** : Chromatography is used to separate the coloured pigments in flowers.
Reason (R) : Chromatography is a technique for the separation of mixtures into its individual components.
- Assertion (A) is incorrect but reason (R) is correct.
 - Both assertion (A) and reason (R) are correct and (R) is the correct explanation of (A).
 - Both assertion (A) and reason (R) are correct but (R) is not correct explanation of (A).
 - Assertion (A) is correct but reason (R) is incorrect.
62. A given chemical substance always contains the same elements combined in a fixed proportion by mass. Guess the compounds formed in the ratio of 1:1 and 1:2 by Carbon and Oxygen.
- | | |
|--------------------------------|------------------------------|
| (1) CO_2, CO_3 | (2) CO, CO_2 |
| (3) CO_2, CO | (4) CO, CO_3 |
63. Arrangement of electrons in an atom with atomic number (Z) = 5 and valency = 3 is
- | | |
|-------------|-------------|
| (1) 2, 1, 2 | (2) 2, 2, 1 |
| (3) 2, 3 | (4) 1, 1, 3 |
64. A neutral metal atom becomes di-positive ion by losing two electrons. In the same way a neutral non-metal atom becomes uni-negative ion by gaining one electron. The formula of a compound which is formed by these two ions is
- | | |
|--------------|--------------|
| (1) m_2x_3 | (2) m_2x_2 |
| (3) m_2x | (4) m_2x_1 |

Based on the experiment to observe speed of diffusion of two gases namely Hydrochloric acid and ammonia, answer the following questions 65 and 66.

65. Precautions to be taken while doing the above experiment is
- Prevent the children from touching ammonia.
 - Prevent the children from touching hydrochloric acid.
 - Do not inhale ammonium fumes.
- (1) b and c
(2) b only
(3) a only
(4) a and c
66. In the above experiment the white ring of ammonium chloride is formed
- outside the tube
 - near Hydrochloric acid
 - near Ammonia
 - in the middle of the tube

Based on the experiment to find the acceleration of marble moving on inclined track, answer the following questions 67 and 68.

67. The experimental arrangement correct order is :
- Keep the steel plate on the floor at the bottom of the tube
 - Mark the readings in cm along the tube
 - Take a long plastic tube of length nearly 200 cm. which is be into half along the length
 - Place one end of the tube on the book and the other end on the floor
- (1) c, b, d, a
(2) a, b, c, d
(3) c, d, b, a
(4) c, d, a, b
68. The apparatus which is missing in the above question (67) to perform the experiment is
- Glass marble
 - Digital stop clock
 - Thermocoal ball
- (1) b only
(2) a, b and c
(3) a and b
(4) c only
69. Take a block of ice and place it on a smooth surface, push the block with some net force. Now increase the net force and push it again. The outcome of the experiment is
- Larger the net force larger the acceleration
 - Larger the net force smaller the acceleration
 - Smaller the net force larger the acceleration
 - Smaller the net force smaller the acceleration
70. Make a stack of carrom coins on the carrom board. Give a sharp hit at the bottom of the stack with the striker. The law which represent the above experiment is
- Newton's fourth law of motion
 - Newton's first law of motion
 - Newton's second law of motion
 - Newton's third law of motion

77.

Property	Liquid	Gas	Solid
Shape	a	b	Definite
Volume	Fixed	c	d

In the above table a, b, c, d represent

- (1) a-not definite, b-definite, c-not fixed, d-not fixed
- (2) a-definite, b-definite, c-fixed, d-fixed
- (3) a-not definite, b-not definite, c-not fixed, d-fixed
- (4) a-definite, b-not definite, c-fixed, d-not fixed

78. Correct formation of table for compressibility property regarding gas and liquid is

(1)

Property	gas	liquid
Compressibility	no	no

(2)

Property	gas	liquid
Compressibility	yes	no

(3)

Property	gas	liquid
Compressibility	yes	yes

(4)

Property	gas	liquid
Compressibility	no	yes

Observe the table given below answer the question 79 and 80 :

Time (t)	0	1	2	3	4
Distance (s)	0	4	8	12	16

79. What do you generalise from the table given above ?

- (1) Accelerated motion
- (2) Uniform velocity
- (3) Non-uniform velocity
- (4) Rest

80. The correct graph representing the above table is

