BUDHA DAL PUBLIC SCHOOL PATIALA
Final Examination (21 March 2024)
CLASS IX
PAPER- SCIENCE (SET-A)

Time:3 hr.   M.M. 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 be 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 be 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

Q1. A liquid boils at $150^\circ C$. Its temperature can also be expressed as   (1)

   a) 423 K   b) 323 K   c) 123 K   d) 100 K

Q2. Milk of magnesia is a   (1)

   a) True solution   b) suspension   c) colloid   d) homogeneous mixture

Q3. The formula of the sulphate of an element X is XSO_4. The formula of its nitrate is   (1)

   a) X_2NO_3 b) $X(NO_3)_2$ c) $X_2(NO_3)_3$ d) $X(NO_2)_2$

Q4. Electronic configuration of Na^+ is   (1)

   a) 2, 8, 1   b) 2, 8, 8   c) 2, 8   d) 2, 8, 8, 1

Q5. Which of the following pairs does not contain both elements?   (1)

   a) Carbon, silicon   b) Helium, nitrogen   c) Bronze, zinc   d) Copper, silver

Q6. Which of the following radioactive isotope is used in the treatment of cancer?   (1)

   a) Iodine – 131   b) Uranium – 235   c) Sodium – 24   d) Cobalt - 60

Q7. Which species of bee is commonly known as the rock bee?   (1)

   a) Apis cerana indica   b) Apis dorsata   c) Apis florae   d) Apis mellifera

Q8. Find out the wrong statement from the following: (1)

   a) White revolution is meant for increase in milk production.

   b) Blue revolution is meant for increase in fish production.

   c) Increasing food production without compromising with environmental quality is called as sustainable agriculture.

   d) None of the above.

A-1

Q9. Lining of small intestine is made up of _____ (1)

a) squamous epithelium   b) columnar epithelium

c) cuboidal epithelium   d) none of the above

Q10. Voluntary muscles are found in (1)

a) Alimentary canal   b) Iris of the eye   c) Limbs   d) Bronchi of lungs

Q11. Which one of the following is not a unicellular organism? (1)

a) Amoeba   b) Chlamydomonas   c) Paramecium   d) Fungi

Q12. The phenomenon of shrinkage of protoplasm from the cell wall due to exosmosis in a plant cell when placed in a hypertonic solution is called (1)

a) Dialysis   b) deplasmolysis   c) plasmolysis   d) imbibition

Q13. For any given situation, Distance/ Displacement is _____ (1)

a) always less than 1   b) either equal to 1 or more than 1

c) always more than 1   d) either equal to 1 or less than 1

Q14. The distance – time graph for a moving scooter for a particular period of time is a horizontal line parallel to the time axis. Which of the following conclusions is correct about this section of the graph? (1)

(a) The scooter has uniform velocity in this section.
(b) The distance travelled by scooter is the maximum in this section.
(c) The scooter has uniform acceleration in this section.
(d) The distance travelled by the scooter is zero in this section.

Q15. If a simple pendulum oscillates 10 times in 10 seconds, then its frequency is _____. (1)

(a) 100 Hz   (b) 10 Hz   (c) 1 Hz   (d) 0.1 Hz

Q16. The image below shows two sound waves A and B of the same frequency. Identify the correct statement for the given image. (1)
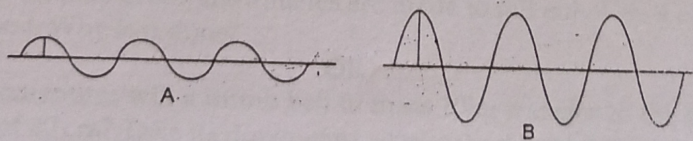
a) The amplitude of wave A is greater than that of wave B.
b) The amplitude of wave A is lesser than that of wave B.
c) The amplitude of wave A is equal than that of wave B.
d) The amplitude of wave A is greater than or equal to that of wave B.

A-2

For the following questions, two statements are given – one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:
   a) Both A and R are true and R is the correct explanation of the assertion.
   b) Both A and R are true but Reason R is not a correct explanation of Assertion.
   c) A is true but R is false.
   d) A is false but R is true.

Q17. Assertion : When common salt is added to water, there will be no change in (1) volume.
      Reason: Particles of common salt occupy inter particle spaces present in water.

Q18. Assertion : Mitosis is called equational division. (1)
      Reason: Each daughter cell has same number of chromosome as the parent cell

Q19. Assertion : An iron ship sails on water whereas an iron nail sinks. (1)

      Reason : When a body is immersed fully or partially in a fluid, it experiences an upward force that is equal to the weight of the fluid displaced by it.

Q20. Assertion : The striated muscle fibres have alternate light and dark bands. (1)
      Reason : These are of two types, namely, striated and smooth muscles.

Section – B

Q21. a) Define polyatomic ion. (2)
      b) Calculate molecular mass of the following:
         (i) HNO_3 (ii) CH_3COOH
      (Atomic mass of C = 12u, O = 16u, H = 1u, N=14u)

Q22. Define Isotopes. Give two examples. (2)

Q23. What will happen if (2)
         a) Apical meristen is cut or damaged.
         b) The skin epithelium is not stratified.
                          OR
      Name the organelles which show the following functions.
         a) Transporting channels of the cell.
         b) Power house of the cell.

Q24. A bus starts from rest and acquires a velocity of 75 km/h in 12s. Find the (2) acceleration.

Q25. In a high jump athletic event, the athletes are made to fall either on a cushioned bed (2) or on a sand bed. Why is it done?
                          OR
      How much momentum will a dumb bell of mass 10kg transfer to the floor if it falls from a height of 80 cm? Take its downward acceleration to be 10 m/s².

Q26. Why does the skin of your fingers shrink when you wash clothes for a long time? (2) Explain.

Q27. Give reasons.
  a) The temperature of water remains constant during boiling.
  b) Steam produce more severe burns than water.
  c) Evaporation is a surface phenomenon.

Q28. a) If 55g of salt is present in 550 gm of solution. What is the concentration of the solution?
  b) Why air is a mixture and water compound? Give two reasons.

OR

  a) How would you confirm that a colourless liquid given to you is pure water?
  b) Define tyndall effect.

(3)

Q29. Differentiate between Tendons and Ligaments (Give 3 points)

(3)

Q30. a) Explain the composite fish culture with example.
  b) Write two advantages.

(3)

Q31. An object of mass 3kg is moving with a velocity of 10m/s. A force is applied to it so that in 25s, it attains a velocity of 35 m/s. Calculate the:
 a) initial and final momentum of the body.
  b) value of force applied.

(3)

Q32. a) Define free fall.
  b) Derive the formula of acceleration due to gravity (g) experienced by an object at a distance (d) from the earth of mass (M) and G, the universal gravitational constant.

(3)

Q33. a) In each of the following a force, F is acting on an object of mass, m. The direction of displacement is from west to east shown by the longer arrow. Observe the diagrams carefully and state whether the work done by the force is negative, positive or zero.

i)

ii)
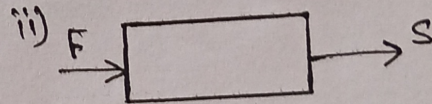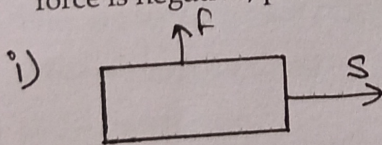
  b) Two bodies of equal masses move with uniform velocities v and 3v respectively. Find the ratio of their kinetic energy.

Section - D

Q34. a) Describe main postulates of Bohr's model of atoms.
  b) If K and L shells of an atom are full, then what would be the total number of electrons in the atom?
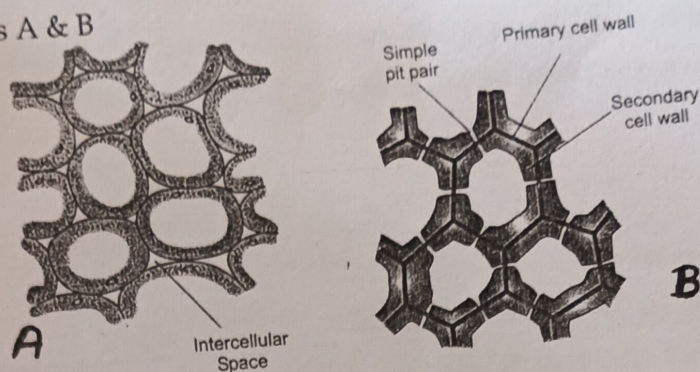 c) Write electronic configuration of oxygen and nitrogen. Find its valency.

(5)

OR

  a) Write main observations of Rutherford scattering experiment
  b) An ion X^{2-} contains 10 electrons and 8 neutrons. What are the atomic number and mass number of the element X. Name the element.

(5)

Q35. Give below are two figures A & B

a) Identify figures A and B.
b) Which one of these is commercially exploited to get jute and hemp?
c) Which one of these is modified to store products?
d) Name the components of xylem.

(5)

Q36. (a) What is reverberation? How can it be reduced?
(b) The given figure shows a snap-shot of a wave-form of frequency 50 Hz. For this wave motion, find :
(i) wavelength
(ii) amplitude
(iii) velocity

OR
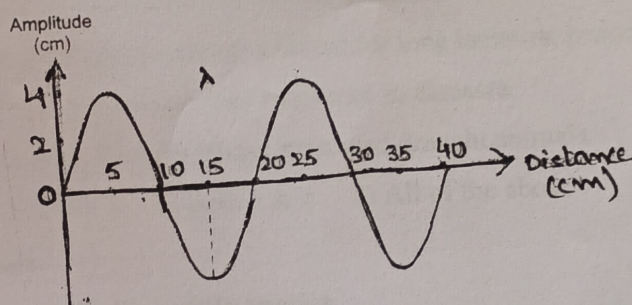
Q36.
a) What happens to the particles of the medium, when an object vibrates?
b) Why are sound waves called mechanical waves?
c) What is a compression?
d) Define rarefaction.
e) Why sound wave is called as longitudinal wave?

Section – E

(4)

Q37. **Read the above passage and answer the following questions :**
Chemical combination between the atoms of same/ different elements resulting in chemical compounds is based upon certain laws, known as 'Laws of chemical combination'. Out of various laws, 'Law of Conservation of Mass' states that the total mass of the products of a physical change or a chemical reaction is equal to the total mass of the reactants, that have combined'. It is supported by Dalton's Atomic theory according to which matter can neither be created nor destroyed and chemical reactions involve simply the exchange of the reacting species to form product species.

a) State law of conservation of mass. Who gave this law?

b) What mass of silver nitrate will react with 5.83 gm of sodium chloride to produce 14.35 gm of silver chloride and 8.5 gm of sodium nitrate if the law of conservation of mass is true?

(4)

Q38.   **Read the above passage and answer the following questions :**

Animal husbandry refers to livestock raising and selective breeding. It is the management and care of animals in which the genetic qualities and behaviour of animals are further developed for profit. A large number of farmers depend upon animal husbandry for their livelihood.

1. Identify the exotic breed of cow
    a) Red Sindhi   b) Sahiwal   c) Brown Swiss   d) All of the above

2. Identify the correct Statement/ Statements:

    Statement 1 – Milk production depends on the duration of the lactation period.

    Statement 2 – Exotic or foreign breeds are selected for long lactation periods.

    Statement 3 – Local breeds show excellent resistance to diseases.

    Statement 4 – Animals used for farm labour are called draught animals.

    a) Both 1 & 2   b) Only 3   c) Both 3 & 4   d) All of the above

3. Define milch animals.

4. Enlist any two different Indian cattle species.

Q39.   The figure shows a watch glass embedded in clay. A tiny spherical ball is placed at   (4)
edge B at a height h above the centre A.
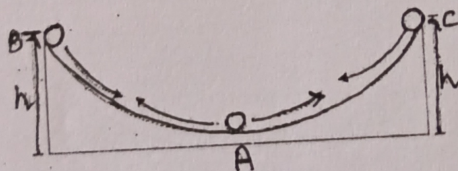
1. The kinetic energy of the ball, when it reaches point A is
    a) zero   b) maximum   c) minimum   d) can't say
2. The ball comes to rest because of
    a) Frictional force   b) gravitational force
    c) both (a) and (b)   d) none of these
3. The energy possessed by the ball at point C is
    a) Potential energy
    b) kinetic energy
    c) both potential and kinetic energy
    d) heat energy

4. What is energy?
   a) The ability to do work
   b) The force applied to an object
   c) The distance traveled by an object
   d) The mass of an object

OR

According to the law of conservation of energy, what happens to energy
   a) it can be created
   b) it can be destroyed
   c) it can be transformed from one from to another
   d) it remains constant