SCIENCE
CLASS IX (THEORY)
SAMPLE QUESTION PAPER-I

Time: 3 Hours   **Maximum Marks** : 75

# Multiple Choice Questions

1. On converting 25 °C, 38 °C and 66 °C to kelvin scale, the correct answer will be
   (a) 298 K, 311 K and 339 K
   (b) 298 K, 300 K and 338 K
   (c) 273 K, 278 K and 543 K
   (d) 298 K, 310 K and 338 K   (1)

2. Choose the correct statement of the following
   (a) conversion of solid into vapours without passing through the liquid state is called vapourisation.
   (b) conversion of vapours into solid without passing through the liquid state is called sublimation.
   (c) conversion of vapours into solid without passing through the liquid state is called freezing.
   (d) conversion of solid into liquid is called sublimation.   (1)

3. Rusting of an article made up of iron is called

   (a) corrosion and it is a physical as well as chemical change
   (b) dissolution and it is a physical change
   (c) corrosion and it is a chemical change
   (d) dissolution and it is a chemical change   (1)

4. Which of the following are homogeneous in nature?

   (i) ice   (ii) wood   (iii) soil   (iv) air
   (a) (i) and (iii)
   (b) (ii) and (iv)
   (c) (i) and (iv)
   (d) (iii) and (iv)   (1)

5. Following are a few definitions of osmosis
   Read carefully and select the correct definition
   (a) Movement of water molecules from a region of higher concentration to a region of lower concentration through a semipermeable membrane
   (b) Movement of solvent molecules from its higher concentration to lower concentration

(c) Movement of solvent molecules from higher concentration to lower concentration of solution through a permeable membrane

(d) Movement of solute molecules from lower concentration to higher concentration of solution through semipermeable membrane.

6. Which among the following has specialised tissue for conduction of water?
   (a) Thallophyta
   (b) Bryophyta
   (c) Pteridophyta
   (d) Fungi   (1)

7. Which of the following is not a criterion for classification of living organisms?
   (a) Body design of the organism
   (b) Ability to produce one's own food
   (c) Membrane bound nucleus and cell organelles
   (d) Height of the plant   (1)

8. Which of the following is not important for individual's health?
   (a) Living in clean space
   (b) Good economic condition
   (c) Social equality and harmony
   (d) Living in a large and well furnished house   (1)

9. Chromosomes are made up of
   (a) DNA only
   (b) protein only
   (c) DNA and protein
   (d) RNA only   (1)

10. A particle is moving in a circular path of radius (r). The displacement after half a circle would be
    (a) Zero
    (b) πr
    (c) $2r$
    (d) $2\pi r$ (1)

11. In case of negative work the angle between the force and displacement is
    (a) 0°
    (b) 45°
    (c) 90°
    (d) 180°   (1)

12. An object moving at a speed greater than that of sound is said to be moving at
    (a) infrasonic speed
    (b) sonic speed
    (c) ultrasonic speed
    (d) supersonic speed   (1)

13. Before playing the orchestra in a musical concert, a sitarist tries to adjust the tension and pluck the string suitably. By doing so, he is adjusting

(a) intensity of sound only

(b) amplitude of sound only

(c) frequency of the sitar string with the frequency of other musical instruments

(d) loudness of sound   (1)

14. Ozone - layer is getting depleted because of

(a) excessive use of automobiles

(b) excessive formation of industrial units

(c) excessive use of man-made compounds containing both fluorine and chlorine

(d) excessive deforestation.   (1)

15. To solve the food problem of the country, which among the following is necessary?

(a) Increased production and storage of food grains.

(b) Easy access of people to the food grain.

(c) People should have money to purchase the grains.

(d) All of the above.   (1)

16. Which one of the following nutrients is not available in fertilizers?

(a) Nitrogen

(b) Phosphorus

(c) Iron

(d) Potassium   (1)

Short Answer Questions

17. A student heats a beaker containing ice and water. He measures the temperature of the contents of the beaker as a function of time. Which of the following would correctly represent the result? Give justification for your choice.   (1+1= 2)
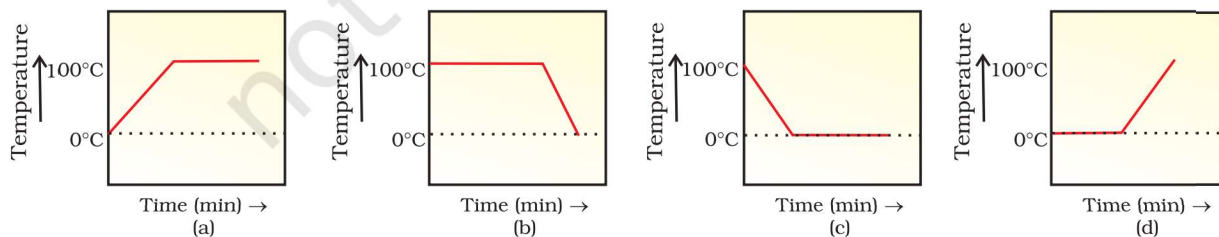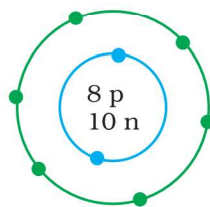
18. An element is sonorous and highly ductile. Under which category would you classify this element? What other characteristics do you expect the element to possess? (½ + 1½ = 2)
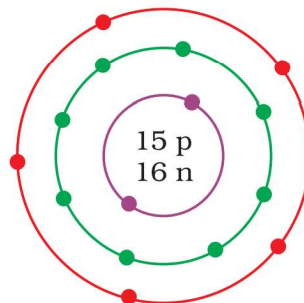
19. What information do you get from the following figures about the valency, atomic number and mass number of atoms X, Y and Z? Give your answer in a tabular form. (1+ ½ + ½ = 2)

| | 5 p 6 n | 8 p 10 n | 15 p 16 n |

(X)   (Y)   (Z)

20. One electron is present in the outer most shell of the atom of an element X. What would be the nature and value of the charge on the ion formed if this electron is removed from the outer most shell? (1+1 = 2)

21. Cells of onion peel and RBC are separately kept in hypotonic solution, what among the following will take place? Explain the reason for your answer.

(a) Both the cells will swell.

(b) RBC will burst easily while cells of onion peel will resist the bursting to some extent.

(c) a and b both are correct

(d) RBC and onion peel cells will behave similarly. (½+1 ½ = 2)

22. Name the different components of xylem and draw a living component of it.

(1 + 1 = 2)

23. Classify the following organisms based on the absence/presence of true coelom (i.e. acoelomate, pseudocoelomate and coelomate)

|	
Spongilla,	Sea anemone
Planaria,	Liver fluke
Wuchereria,	*Ascaris*
Nereis,	Scorpion
Earthworm,	Birds
Fishes,	Horse (2)

24. Which cell organelle controls most of the activities of the cell? (2)

25. Draw well labelled diagrams of various types of muscles found in human body

(2)

26. The following velocity-time graph shows the motion of a cyclist. Find (i) its acceleration, (ii) its velocity and (iii) the distance covered by the cyclist in 15 seconds.
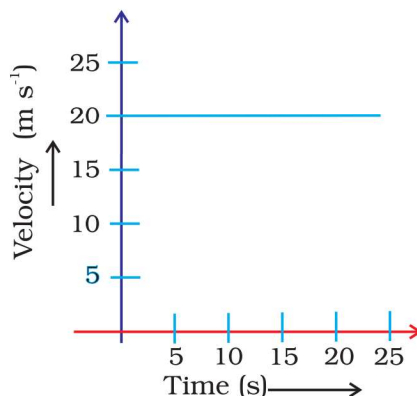
(½ +½ + 1 =2)

27. A ball is dropped from a height of 10 m. If the energy of the ball reduces by 40% after striking the ground, how much high can the ball bounce back?

(2)

28. Draw a graph for a wave representing wave disturbance and time for a sound changing from low pitch to high pitch, keeping the amplitude of the sound same. (2)

29. Why lichens do not occur in Delhi whereas they commonly grow in Manali or Darjeeling? (2)

30. Lichens are called pioneer colonisers of bare rock. How can they help in formation of soil? (2)

31. What is a GM crop? Name any one such crop which is grown in India.

(1+1= 2)

32. If there is low rainfall in a village throughout the year what measures will you suggest to the farmers for better cropping? (2)

33. In agricultural practices, higher input gives higher yield. Discuss how? (2)

Long Answer Questions

34. The mass of one steel screw is 4.11g. Find the mass of one mole of these steel screws. Compare this value with the mass of the Earth (5.98×10^{24}kg). Which one of the two is heavier and by how many times?

(1½+ 2½ + 1= 5)

Or

In photosynthesis, 6 molecules of carbon dioxide combine with an equal number of water molecules through a complex series of reactions to give a molecule of glucose having a molecular formula $C_6H_{12}O_6$. How many grams

Exemplar Problems

16-04-2018

of water would be required to produce 18 g of glucose? Compute the volume of water so consumed assuming the density of water to be 1 g cm⁻³.

(4 + 1= 5)

35. Explain giving reasons

(a) Balanced diet is necessary for maintaining healthy body.

(b) Health of an organism depends upon the surrounding environmental conditions.

(c) Our surrounding area should be free of stagnant water.

(d) Social harmony and good economic conditions are necessary for good health. (1 + 1 + 1 + 2 = 5)

Or

Why is AIDS considered to be a 'Syndrome' and not a disease? (5)

36. (a) Explain the meaning of inertia with the help of an example.

(b) Two balls of same size but of different materials, rubber and iron are kept on the smooth floor of a moving train. The brakes are applied suddenly to stop the train. Will the balls start rolling? If so, in which direction? Will they move with the same speed? Give reasons for your answer.

(2 + ½ + ½ + 1 + 1= 5)

Or

(a) A ball of mass *m* is thrown vertically upward from the ground with an initial speed *v*, its speed decreases continuously till it becomes zero. Thereafter, the ball begins to fall downward and attains the speed *v* again before striking the ground. It implies that the magnitude of initial and final momentum of the ball are same. Yet, it is not an example of conservation of momentum. Explain why?

(b) A bullet of mass 20 g is horizontally fired with a velocity 150 m s⁻¹ from a pistol of mass 2 kg. What is the recoil velocity of the pistol?

(3 + 2 = 5)

37. (a) With the help of Second Law of Motion and the Universal Law of Gravitation derive an expression for acceleration due to gravity '*g*'.

(b) The weight of any person on the moon is about 1/6 times that on the earth. He can lift a mass of 15 kg on the earth. What will be the maximum, mass, which can be lifted by the same force applied by the person on the moon? (1+1+1+2=5)

16-04-2018

(a) Identical packets are dropped from two aeroplanes, one above the equator and the other above the north pole, both at height '*h*'. Assuming all conditions are identical, will these packets take same time to reach the surface of the earth? Justify your answer.

(b) It is seen that a falling apple is attracted towards the earth. Does the apple also attract the earth? If so, we do not see the earth moving towards the apple. Why?   (2 + 1 + 1 + 1 = 5)

38. A motor car, with its glass totally closed, is parked directly under the sun. The inside temperature of the car rises very high. Explain why?   (5)

Or

What are the causes of water pollution? Discuss how can you contribute in reducing the water pollution.   (2½ + 2½ = 5)