

**SINDHI HIGH SCHOOL, BENGALURU.**

**ANNUAL EXAMINATION (2024-25)**

**SUBJECT: SCIENCE**

**Class: IX Max Marks: 80**

**Date: 17/2/2025 Reading Time: 8:30a.m. to 8:45am**

**No of Printed Sides: 05 Writing Time: 8:45 to 11:45 am**

**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.**

**iii. Section A consists of 20 objective-type questions carrying 1 mark each.**

**iv. Section B consists of 6 Very short answer type 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. Answers to**

**these questions should be in the range of 80 to 120 words.**

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

**sub-parts.**

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|  | **SECTION A** |  |
|  | **Select and write the most appropriate option out of the four options given for each of the questions 1 – 20.** |  |
| 1 | In a thermometer there are 20 divisions between 900c and 1000c.While  determining the boiling point of water using this thermometer the level of  mercury becomes constant at 3 divisions below the 1000 C mark. What is the temperature recorded in Kelvin scale  (a) 374 K (b) 371.5K (c) 372K (d) 373.5 K | 1 |
| 2 | Molecular mass of ethanoic acid (CH3COOH) will be:  (a) 60 u (b) 34 u (c) 58 u (d) 46 u | 1 |
| 3 | Which of the following increases the rate of evaporation of water  (a) Adding common salt to water  (b) Decrease in surface area of water  (c ) Decrease in humidity  (d) Increase in humidity | 1 |
| 4 | Two particles are 16X8 and 17Y8 are called \_\_\_\_\_\_A, as they have \_\_\_\_\_\_B  (a) A= isobars, B= same chemical properties  (b) A= isotopes, B= different number of neutrons  (c) A= isobars, B= different chemical properties  (d) A= isotopes, B= same number of neutrons | 1 |
| 5 | A student took a petri dish and mixed four pinches of sulphur powder with two pinches of iron filings. He divided the mixture in two parts A and B, and heated the contents of sample B.A pinch of sample A and that of sample B is shaken with carbon disulphide. Identify the correct option among the following  (a) Sample B is a mixture in which sulphur dissolves in carbon disulphide  (b) Sample A is a compound  (c) Sample B dissolves in carbon disulphide  (d) Sample A partly dissolves in carbon disulphide | 1 |
| 6 | Mass ratio of Magnesium and sulphur in Magnesium sulphide would be:  (a) 2:3 (b) 3:2 (c) 3:4 (d) 4:3 | 1 |
| 7 | Ram was asked to prepare two samples of suspension by his teacher. The following substances were found near the lab shelf. Identify the correct option to suit his need.  (i) Sand (ii) Copper Sulphate crystals (iii) Sugar Crystals  (iv) common salt (v) clay  (a) (i) and (v) (b) (iv) and (v) (c) (i) and (ii) (d) (iii) and (iv) | 1 |
| 8 | meiosis class 9 scienceIdentify the given division and the site where it occurs.  (a) Mitosis – stem tip (b) Meiosis – flower  (c) Mitosis – flower (d)Meiosis - root tip | 1 |
| 9 | **Cells of onion peel and RBC are separately kept in a hypotonic solution, what among the following will take place?**  **(a) Both the cells will swell.**  **(b) RBC will burst easily while cells of onion peel will resist the bursting to some extent.**  **(c) Both the cells will remail intact**  **(d) RBC and onion peel cells will behave similarly.** | 1 |
| 10 | The dead tissue present in coconut shell  (a) Phloem fibre (b)Seive parenchyma (c) Xylem fibre (d) Sclerenchyma | 1 |
| 11 | In desert plants, rate of water loss gets reduced due to the presence of  (a)cuticle (b)stomata. (c)lignin. (d)suberin | 1 |
| 12 | Which of the following are the characters of Dense regular connective tissue  i. It is a fibrous connective tissue, ordered and densely packed collection of fibres and cells.  ii. It is abundant below the skin, between the internal organs and in the yellow bone marrow.  iii. is the principal component of tendons and ligaments.  iv. It is a colourless fluid that has been filtered out of the blood capillaries.  (a) i & iii (b) ii & iii (c) iii & iv (d) i & iv | 1 |
| 13 | The area under a v-t graph represents a physical quantity whose SI unit is  (a) m2 (b) m (c) m3 (d) ms-1 | 1 |
| 14 | Pitch of a sound note depends upon its  (a) speed (b) amplitude (c) frequency (d) wave length | 1 |
| 15 | Identify different plant parts in which chromoplast, chloroplast and leucoplast are present respectively.  (a) leaf, flower, potato (b) potato, leaf, flower.  (c) flower, leaf, potato (d)root, potato, leaf | 1 |
| 16 | Factors responsible for loss of grains, during storage and production are:  i. Biotic factors like rodents, pests, insects, etc. ii. Abiotic factors like temperature, humidity, moisture, etc.  iii. Tallness and profuse branching of fodder crops  iv. continuous use of fertilizers, dry and increased rate of soil erosion.  (a)ii & iii (b)iii & iv (c)i & iv (d) i & ii | 1 |
|  | **Note: In the following questions 17 to 20, a statement of Assertion is followed by a statement of Reasoning. Choose the correct answer from the following options.**  **(a) Both assertion and reason are correct statements, and reason is the correct explanation for assertion.**  **(b) Both assertion and reason are correct statements but reason is not the correct explanation for assertion.**  **(c) Assertion is correct, but reason is the wrong statement.**  **(d) Assertion is wrong, but reason is the correct statement.** |  |
| 17 | Assertion (A) : Nitrogen is a diatomic gas.  Reason (R): One molecule of ammonia contains one atom of nitrogen and three atoms of hydrogen. | 1 |
| 18 | Assertion (A): Plasma membrane is called a selectively permeable membrane.  Reason(R): Plasma membrane allows the entry and exit of some materials in and out of the cell, it prevents the movement of some other materials. | 1 |
| 19 | Assertion (A): The root tips are cut, the roots won’t grow because of the absence of meristematic tissue  Reason(R): Meristematic tissue take up a specific role and lose their ability to divide | 1 |
| 20 | Assertion (A): Velocity of an object thrown vertically upwards decreases till it reaches the highest point.  Reason (R): Acceleration due to gravity retards the motion of object. | 1 |
|  | **Section B** |  |
| 21 | Atomic number of an element is 13. What would be the number of protons and electrons in : (i) its atom and (ii) its ion | 2 |
| 22 | i **Sarala’s mother wanted to make Mango pickle. She asked her daughter to cut the tender mango into four and add salt to them and keep aside for some time. She observed after some time (2hrs) that the mango pieces had started to lose water and they have shrunken in size. Name the phenomenon and describe the reason.**  **ii. How can cell repair itself if it is damaged?** | 2 |
| 23 | Diagramatically show the difference between single straited muscle fibre and smooth muscle fibre. | 2 |
| 24 | i)A ball is thrown vertically upwards with a speed of 0.5m/s. calculate the maximum height to which it reaches.  ii) Calculate the time taken by the ball to reach the maximum height? | 2 |
| 25 | Write any two differences between acceleration due to gravity(g) and universal gravitational constant(G)  **OR**  What is the significance of Gravitational force in the nature? | 2 |
| 26 | i. Which are the two ways of obtaining fish?  ii. Give one example each for inland fisheries and marine fisheries. | 2 |
|  | **Section C** |  |
| 27 | (a) A solid substance X on heating directly converts to gas Y without  converting to liquid state by a process P. Y can be converted to X by a  process Q. Identify X,Y,P and Q.  (b) A crystal of copper sulphate is dropped in beaker A containing hot  water and beaker B containing cold water. What do you observe after  some time.  Name the process involved | 2  1 |
| 28 | Attempt either option A or B.  A. (a) The atomic mass and percentage abundance of the three isotopes of silicon is given below:    Calculate the average atomic mass of silicon.  b) What does 2n2 formula signify?  **OR**  B. An element X has an atomic number 17 and mass number 35. Draw a diagram showing the distribution of electrons in the orbits and mention the nuclear composition of the atom. If this element X combines with another element Y whose electronic configuration is 2,8,2 what will be the formula of the compound thus formed? | [2]  [1] |
| 29 | i. What is membrane biogenesis?  ii. Why is Mitochondria called the power house of the cell?  iii. What would be the consequence if Golgi and ribosomes are affected in a liver cell? | 3 |
| 30 | i) A dam is constructed across a river and Hydel power is generated. List the various energy transformations that occur during the process. ii) Divya pulls a block with a force of 200 N through 50 m in 1 minute. Compute the power used by her to pull it. | 3 |
| 31 | i) Find the acceleration produced by a force of 12N exerted on an object of mass 3 kg.  ii) State the law used in the above numerical problem. | 3 |
| 32 | (i) Give reason for the following:  (a) A ship slightly rises when it enters a sea from a river.  (b) It is easy to cut a fruit with the sharp edge than with the blunt edge of a knife.  (ii) Find the weight of a 50kg object in SI system on the Earth and on the Moon. | 3 |
| 33 | Draw neat labelled diagrams of the following :  (i)The tissue which help in control and coordination of the body.  (ii) The tissue which is found in the organ which is formed first in the foetus and exhibit rhythmicity | 3 |
|  | **Section D** |  |
| 34 | Attempt either option A or B.  (a) Calculate the mass of glucose and mass of water required to make 200g of 25% solution of glucose  (b) Classify the following into element, compound ,mixture and metalloid  Alloys ,Calcium Sulphate, Boron, Copper  (c) Name a liquid metal at room temperature and mention one of its uses.  **OR**  (a) A solution contains 5ml of alcohol mixed with 75ml of water. Calculate the concentration of solution in terms of volume percent  (b) The table given below shows the no of grams of five different solids dissolved in 100g of solvents : water ,alcohol and chloroform at 200C   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Solvent  (100g) | Salt(g) | Sugar(g) | Iodine(g) | Chalk(g) | Urea(g) | | Water | 35 | 204 | 0.6 | 0 | 100 | | Alcohol | 0 | 0 | 20 | 0 | 16 | | Chloroform | 0 | 0 | 3 | 0 | 0 |   (i)Which solid has the maximum solubility in water at 200C  (ii)A student prepared a saturated solution of salt in water at 200C,and then added 20g of water to it. What mass of salt should be added again to make it saturated ?  (iii) Which solid is insoluble in all the three solvents | 2  2  1  2  3 |
| 35 | (i)Why are manures better than fertilisers though they both increase the soil fertility?  (ii)**Give any two desirable characters of bee varieties suitable for honey production?**  **(iii)  What management practices are common in dairy and poultry farming?**  **(iv) What is genetic manipulation? How is it useful in agricultural practices?**  **OR**  (i)What is hybridisation? What are its types?  (ii)Mention ant two points differentiating between mixed cropping and intercropping. Give one example of each. | 5 |
| 36 | For a mass of 2 kg, the velocity-time graph is(i)For a mass of 2kg , the velocity –time graph is given below.Find the force experienced by the mass on the regions OA, AB and BC.    (ii)Name the physical quantity corresponding to BC of the graph.  **OR**  (a)State the Newton’s third law of motion.  (b) Explain any two situations in which the above law works.  (c) A car of mass 1800 kg moving with a speed of 10m/s , is brought to rest after covering a distance of 50m.Calculate the force acting on the car. | 5 |
|  | **Section E** |  |
| 37 | Glucose (C₆H₁₂O₆) is a simple sugar that provides energy to living organisms. It is composed of carbon, hydrogen, and oxygen atoms. The molecular mass of glucose can be calculated by summing the masses of all the atoms in the molecule.  a) What is the atomicity of a glucose molecule?  b) What is the ratio by mass of carbon to hydrogen to oxygen atoms in glucose?  Attempt either option (c) or (d).  c) Calculate the molecular mass of glucose. (Atomic masses: C = 12 u, H = 1 u, O =  16 u)  **OR**  d) Identify a polyatomic ion which contains the atoms carbon, hydrogen and oxygen.  Write its formula and name it. | [1]  [2]  [1] |
| 38 | observe the given diagram and answer the following questions:-  https://tse2.mm.bing.net/th?id=OIP.tfb9wKd3FtLXRSOHQJRgUQHaEC&pid=Api&P=0&h=180i. Name the concept explained in the given picture.  ii. Why only these specific fishes are selected in this pond?  iii. Give example of bottom feeders.  iv. What is the advantage of such ponds? | 4 |
| 39 | Read the small passage given and answer the questions following the passage.  The large halls or auditoriums are constructed with a few practical measures to prevent interfering of sound waves. Acoustic materials are applied to stage areas, side walls, ceilings and balcony faces. The construction of walls is done to prevent echoes and reverberation .Generally, the roof and walls are covered with soft materials. Sound boards are installed are curved in shape.  i) Why are soft materials used to cover certain parts of an auditorium?  ii) What is the main cause of reverberation?  iii) What is an echo? Mention any one condition essential for the formation of an echo.  OR  Draw a diagram to show how a curved sound board helps in effective sound distribution in a big hall. | 4 |

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