



ITL PUBLIC SCHOOL  
ANNUAL EXAMINATION (2023-24)

Date: 16.2.24

Class: IX

SCIENCE(086)- SET A

Time: 3 hrs

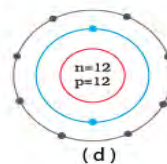
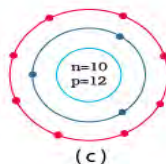
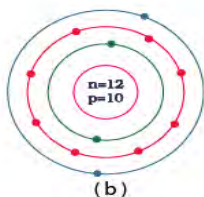
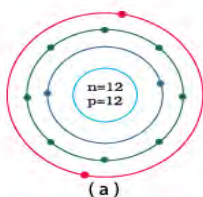
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General Instructions:

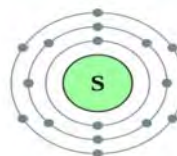
- This question paper consists of 39 questions in 5 sections.
- All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
- **Section A** consists of 20 objective type questions carrying 1 mark each.
- **Section 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.
- **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.
- **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.
- **Section E** consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

SECTION - A

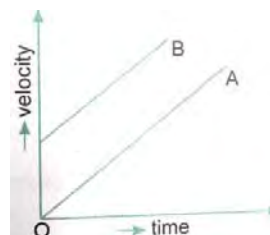
- 1 Two substances, A and B were made to react to form a third substance,  $A_2B$  according to the following reaction:  
 $2A + B \rightarrow A_2B$ . What is the atomicity of the product formed? 1
- 2 An atom has 15 protons, 15 electrons and 16 neutron. What is the atomic number and mass number of that element? 1
- 3 Identify the  $Mg^{2+}$  ion from the given structures where, n and p represent the number of neutrons and protons respectively. 1



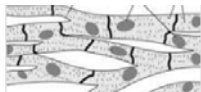
- 4 Arrange salt, oxygen, milk in correct order of inter particle spaces present in the matter. 1
- 5 What will be the valency of the element given in the following figure: 1



- 6 Tyndall effect is observed in starch solution but not in salt solution. Give reason. 1
- 7 Which of the following is an example of chemical change and physical change? 1  
a) Ripening of fruits    b) Melting of wax
- 8 A solution contains 30g of common salt in of 90g water. Calculate the concentration in terms of mass by mass percentage of the solution. 1
- 9 Two velocity-time graphs are given. Which of the two represents higher acceleration? Give reason for your answer. 1



- 10 Why does a fielder pull his hands backward while catching a fast moving ball? 1

- 11 A person takes concentrated solution of salt. After sometime he started vomiting. What is the phenomenon responsible for this? 1
- 12 Name the waxy coating present on the leaves. 1
- 13 Identify the type of animal tissue given in the diagram. 1
- 
- 14 A soil sample has adequate water holding capacity but is deficient in phosphorous and potassium. Suggest any one practice that would improve the quality of crops grown in that field? 1
- 15 What is the location of the following tissues in the human body – smooth muscles , cartilage ? 1
- 16 Identify the activities on the basis of voluntary or involuntary muscles: 1
- a) Movement of food in intestine      b) Writing with hand

**Question no.17-20 are Assertion – Reason questions .Each question consists of an assertion A and a reason R for the same. Identify the correct option.**

- a) A and R are true And R is correct explanation of A.
- b) A and R are true but R is not the correct explanation of A
- c) A is true but R is False
- d) A is false and R is true

- 17 **Assertion(A) :** Rudolf Virchow modified the hypothesis of cell theory given by Schleiden and Schwann. 1  
**Reason(R) :** Rudolf Virchow suggested that all cells arise from pre-existing cells
- 18 **Assertion(A):** Uniform circular motion is an accelerated motion. 1  
**Reason(R):** In circular motion magnitude of velocity is constant but direction of motion is continuously changing so the velocity is changing with time.
- 19 **Assertion(A):** A sound of high pitch is said to be shrill 1  
**Reason(R):** Pitch of a sound increases on increasing its frequency
- 20 **Assertion(A):** In Rutherford's experiment, most of the alpha particles crossed the gold foil without getting deflected. 1  
**Reason(R):** Most of space inside an atom is empty.

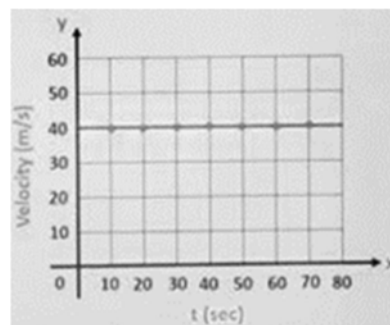
### SECTION - B

- 21 Name the following and give one characteristic feature of following tissues: 2
- a) Living tissue that stores food in plants    b) a connective tissue in humans with fluid matrix
- 22 Mention one exotic and one indigenous breed of Poultry birds. 2

### OR

List two living conditions to keep the cattle healthy.

- 23 A farmer in town X changed the cropping pattern of the farm. Earlier the farm had only one crop soya bean but then the farm was divided into rows of different crops. Two rows of soya bean and alternate two rows had maize and the next two had cowpea. 2
- a) Name the cropping pattern used in above case.
- b) Mention two advantages of this new cropping pattern
- 24 The velocity-time graph shows the motion of a car. Find it's 2
- a) acceleration    b) velocity    c) distance covered in 30 seconds.



- 25 How is mass different from weight of an object? Give two points to justify. 2
- 26 Composition of the nuclei of two atoms X and Y are given as under 2

	X	Y
Protons	6	6
Neutrons	6	8

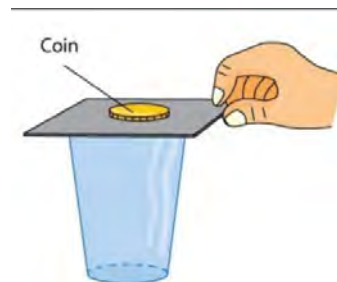
Give the mass number of X and Y. Name and define the relation between the two species?

**OR**

How isotopes are different from isobars? Give example to explain your answer.

### SECTION - C

- 27 A playing card was placed over an empty glass tumbler as shown. A one rupee coin was placed over the card and then the card was flicked with a push. 3
- a) What will you observe after the flick?
- b) State the law involved in the above case.
- c) What will be your observation if the above coin is replaced with a heavier five rupee coin?
- 28 Define Potential energy. Calculate the potential energy of a 40Kg mass raised to a height of 5m above the ground. 3
- 29 a) If bromine atom is available in the form of say, two isotopes-  $^{79}\text{Br}_{35}$  (49.7%) and  $^{81}\text{Br}_{35}$  (50.3%), calculate the average atomic mass of bromine atom. 3
- b)  $\text{Na}^+$  has completely filled K and L shells. Explain.



**OR**

An element X has electronic configuration = 2,8,1.

- a) Write its atomic number.
- b) Calculate its valency.
- c) One electron is present in the outer most shell of the atom of an element X. What would be the nature and value of charge on the ion formed if this electron is removed from the outer most shell?
- 30 Differentiate between meiosis and mitosis on the basis of- 3
- a) number of daughter cells produced
- b) number of chromosomes in daughter cells
- c) purpose of this cell division
- 31 Draw a neat diagram of a plant cell and label in it the following: 3
- a) organelle that generates energy      b) organelle that synthesizes proteins
- c) organelle involved in storage of cell sap

**OR**

Draw a labelled diagram of a plastid and label the parts –grana , stroma , DNA

- 32 a) State the universal law of gravitation. 3
- b) The force of gravitation between two masses is 100N. Show mathematically that what will be the new force if
- i) both the masses are doubled
- ii) distance between them is doubled
- 33 a) We should wear cotton clothes in summers. Give reason. 3
- b) Suggest a method to liquefy atmospheric gases.
- c) Why we are able to smell hot sizzling food several meters away?

## SECTION - D

- 34 a) Define atomicity. 5  
b) What is the atomicity of  $\text{SO}_4^{2-}$  and  $\text{CO}_3^{2-}$ ?  
c) Give the names of the elements present in the following;  
i) Hydrogen bromide ii) Potassium sulphate  
d) Write one point of difference between a molecule of an element and a molecule of a compound with an example.

OR

- a) Calculate the molecular mass of the following substances:  
i) Ethyne,  $\text{C}_2\text{H}_2$  ii) Sulphur molecule,  $\text{S}_8$   
[atomic mass of  $\text{H}=1$ ,  $\text{C}=12$ ,  $\text{S}=32$ ]  
b) Write down the names of the compounds represented by the following formula:  
i)  $\text{KNO}_3$  ii)  $\text{CaCl}_2$  iii)  $\text{MgO}$
- 35 a) What are the types of food requirements of dairy animals? 5  
b) How do external and internal parasites can be fatal for cattle?  
c) Mention one exotic and one indigenous breed of cow.

OR

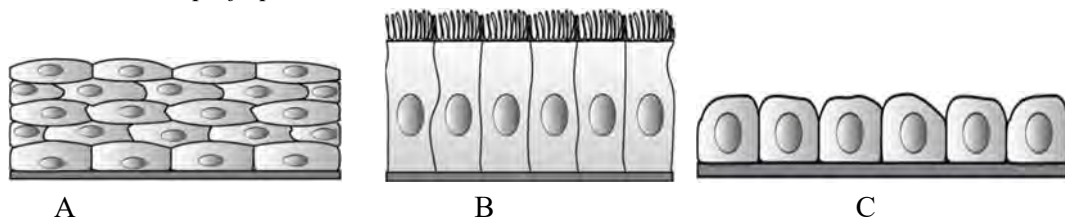
- a) Five or six fish species are cultured together in a single pond. What is this system of fish culture called as?  
b) How are different species for above type of culture selected?  
c) Mention the problem associated with this system and also explain how this problem can be solved.
- 36 a) Give two medical uses of ultrasound 5  
b) Why are the ceilings of concert halls and cinema halls curved?  
c) A person shouts near a wall and heard the echo after 10 sec. What is the distance of the wall from the person? (take speed of sound= $346 \text{ ms}^{-1}$ )

OR

- a) What is reverberation of sound?  
b) Suggest two arrangements that should be made in auditorium to control excessive reverberation.  
c) A bat can hear the sound upto frequency 120KHz. Determine the wavelength of the sound wave. Given the speed of sound in air is  $344 \text{ m/s}$ .

## SECTION-E

- 37 With reference to the given paragraph answer the questions based upon related concepts – 4  
*The covering or protective tissues in the animal body are epithelial tissues. Epithelium covers most organs and cavities within the body. It also forms a barrier to keep different body systems separate. The skin, the lining of mouth, lining of blood vessels, lung alveoli, kidney tubules are all made up of epithelial tissues.*



- a) Name the type of epithelial tissue from the given diagrams A,B,C which help in the movement of particles such as mucus out of the respiratory tract and how?  
b) How is glandular epithelium formed ?

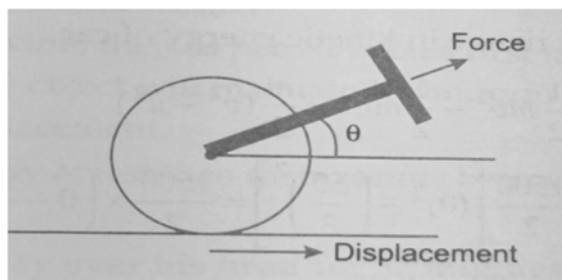
c) Skin is made up of a specialized squamous epithelium. What is this epithelium called as and what is its advantage?

d) Which type of epithelium is present in ducts of salivary glands?

38 With reference to the given paragraph answer the questions based upon related concepts – 4

*In many situations, the motion of the object is at some angle to the applied force.*

*When a gardener pulls a lawn roller by applying force on its handle, the roller moves horizontally on the lawn.*



a) Amit applies force to displace a large box from its position. He tries hard but is unable to displace the box. How much work is done by Amit and why?

b) Radha covered a distance of 1.5km from market to her home with a bag containing vegetables in her hand. What is the work done by Radha and why?

c) A car is running on the road and suddenly the driver applies brakes to stop the car. What is the nature of work done by the braking force and why?

d) What happens to the kinetic energy of the car when it stops?

39 With reference to the given paragraph answer the questions based upon related concepts – 4

*Mixtures are constituted by more than one kind of pure form of matter, known as a substance. Depending upon the nature of the components that form a mixture, we can have different types of mixtures i.e., homogeneous and heterogeneous mixtures.*

a) A student mixed a few drops of egg white in 50ml of water in a tube. What type of mixture will be formed inside the test tube?

b) Classify the following into mixture and compound:

common salt, air

c) How will differentiate a true solution from suspension on the basis of filtration?

d) State one difference between homogeneous and heterogeneous mixture.

