

**MM: 80**

**(i) This paper consists of three sections A, B and C.**

**(ii) Marks are indicated against each question.**

**(iii) Draw neat and well labelled diagrams wherever required.**

Q1. Answer in one word or one sentence : (1x5=5)

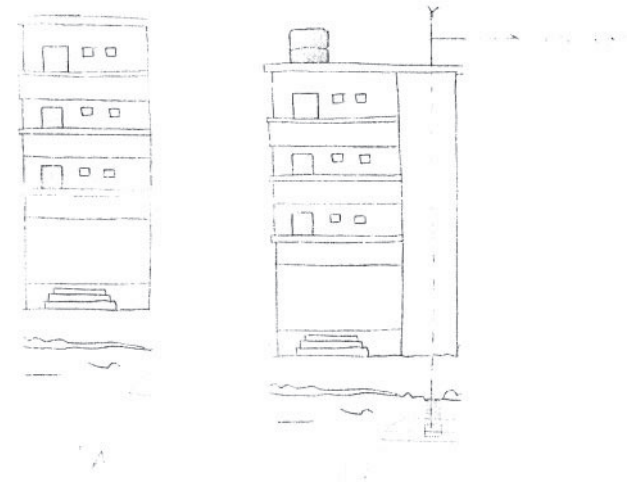
- (a) Rishabh used a matchstick to clean his ear and became partially deaf. Which part of his ear might have been affected?
- (b) A train is moving towards east. In which direction does the frictional force act on the train?
- (c) If the frequency of a vibrating string is 100 Hz, find its time period.
- (d) It is easier to move with flat shoes on sand rather than pointed heels. Give reason.
- (e) Given below are two situations. Name the type of force acting in each situation :
  - (i) Falling of rain drops.
  - (ii) Two plastic pipes rubbed against a woollen cloth are kept 1 cm apart.

Q2. Answer briefly : (2x4=8)

- (a)
- (i) What is the similarity between the two figures given above?
- (ii) Explain the significance of the similarity.

(ii)

- (c) A man exerts pressure of 12 Pa by applying a force of 72 N on a table. Calculate the area over which the force is applied.
- (d) (i) Which of the two buildings given below will be safe from the effect of lightning?
- (ii) Name the device which keeps it safe and how?



Q3. Answer the following: (3x3=9)

- "Friction is a necessary evil". Justify the statement.
- Two hollow metallic hemispheres are joined together. Can you separate these hemispheres if all the air is sucked out from them? Explain your answer.
- Wire 'A' oscillates 300 times in 60 seconds and wire 'B' oscillates 240 times in 80 seconds.

(2)

- (i) Find the frequency of both wires 'A' and 'B'.  
(ii) Which of these wires will have a higher pitch and why?

Q4. Answer in detail : (5x1=5)  
Name the device used to test the charge on an object. Explain its construction and working with the help of a well labelled diagram.

### SECTION-B (CHEMISTRY)

- Q1. Answer in one word or one sentence : (1x5=5)
- The prefix 'poly' means many, for example polygon means a figure with many sides. What is the significance of the prefix 'poly' in polymer?
  - Some elements have properties that are intermediate between those of metals and non-metals. What are these elements known as?
  - Deficiency of a metal 'X' causes lack of formation of chlorophyll in a plant. Identify metal 'X'.
  - Reehan was learning how to cook. His father strictly told him not to wear nylon clothes in the kitchen. Justify his father's advise.
  - Complete the given analogy :  
sulphur : sulphuric acid :: \_\_\_\_\_ : nitric acid ::  
chlorine : \_\_\_\_\_

- Q2. Answer briefly : (2x4=8)
- Element 'A' is very soft and reacts vigorously with water. It is placed second in the reactivity series.
    - Identify element 'A'.
    - Write the word equation of its reaction with water.
    - State the nature of the oxide that will be formed when element 'A' reacts with oxygen.
  - Rahul lives in Mumbai and prefers to use a synthetic belt rather than a leather one. Give reason.
    - Differentiate between biodegradable and non-biodegradable substances.

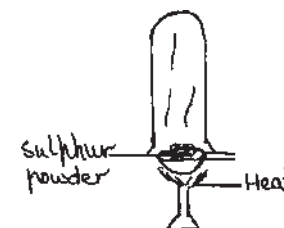
- (c) Complete the table given below :

	Metal	Physical property	Use of the physical property
(i)	_____	_____	used to make electrical wires
(ii)	Iron	_____	used to make bells
(iii)	Aluminium	malleability	_____

- (d) Plastic is the material of choice for most requirements but we often hear of the campaign "SAY NO TO PLASTICS" as plastics are not eco-friendly. State any two ways in which you can cope with the problems related to overuse of plastics.

- Q3. Answer the following : (3x3=9)

- (a) Pratyush took sulphur powder in a spatula and heated it as shown in the figure. He collected the gas evolved by inverting a test tube over it and dissolved it in water.



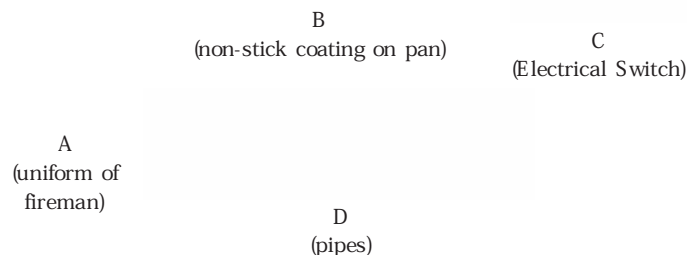
- What will be the action of the solution obtained on litmus paper? Justify the change observed in the litmus paper.
  - Write the chemical equation involved on heating sulphur powder.
  - State one use of sulphur.
- (b) A synthetic fibre 'W' contains large number of ester groups whereas the synthetic fibre 'X' is chemically a polyamide and is stronger than a steel wire. Another synthetic fibre 'Y' is made up of a polymer 'Z' which consists of a number of glucose units joined one after the other.
- Identify the fibres 'W' and 'X'.
  - Name the polymer 'Z'.
  - State one use each of fibres W, X and Y.
- (c) A magician arrives in Electron village and claims that he has a magic solution for sale that can transform

copper objects to silver. For demonstration he asks the villagers to give him a small copper object which he suspends in his magic solution with the help of a thread. After an hour he takes out the object which seems to be transformed to silver and shows it to the amazed villagers.

- Name the type of reaction demonstrated by the magician.
- Which of the following solution do you think is the magic solution?  
(1) silver nitrate (2) copper sulphate (3) iron sulphate
- The above activity demonstrated by the magician proves that a \_\_\_\_\_ reactive metal can replace a \_\_\_\_\_ reactive metal from its \_\_\_\_\_.

Q4. Answer the following : (5)

(a)



- Name the plastic used in making the articles A, B, C and D given in the figure.
  - Plastics are broadly classified into two types - thermoplastics and thermosetting plastics. Classify the different plastics used in articles A, B, C and D as thermoplastic or thermosetting plastics.
- (b) Differentiate between thermoplastics and thermosetting plastics.

(5)

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PAPER-1  
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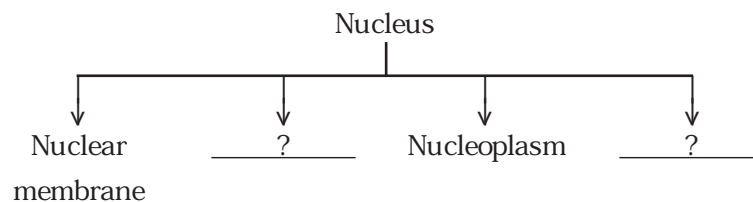
## SECTION-C (BIOLOGY)

Q1. Answer in one word or one sentence : (1x4=4)

- Antibiotics though a boon in medicine, should not be taken unnecessarily. Give reason.
- I am microscopic and exist both as living and non-living particle. I reproduce only inside the body of host organism. Who am I?
- Choose the odd one out and give reason for your choice: Rhinoceros, Bengal tiger, Giant Panda, Dinosaurs
- Complete the given analogy :  
Rust of wheat : \_\_\_\_\_ :: Citrus canker : Bacteria ::  
Yellow vein mosaic of bhindi : \_\_\_\_\_

Q2. Answer briefly : (2x4=8)

- Reshma was considered ill mannered by her friends when she sneezed without covering her mouth with a handkerchief. Her teacher told her that it aids in the spread of communicable diseases. What are communicable diseases? Classify the following as bacterial or viral diseases (i) Typhoid (ii) Chicken Pox.
- The shape of a cell is related to the function it performs. Justify the statement diagrammatically by drawing any two cells of the human body.
- (i) Complete the following flow chart :



- What is the role played by the nucleus in a cell?
- (d) Pachmarhi Biosphere Reserve consisting of one national park and two wildlife sanctuaries has the richest biodiversity.
- Name the national park in Pachmarhi Biosphere Reserve.

(6)

(ii) Name two endemic flora of this reserve.

(iii) What is the aim of the Forest Conservation Act?

Q3. Answer the following : (3x3=9)

(a) The picture depicts an important part in a child's health care regime.

(i) What are the biological preparations such as polio drops known as?

(ii) What changes take place in the human body when such preparations are administered?

(iii) Other than Polio name any two diseases a person is protected from by taking such biological preparations.

(b) Study the table given below and answer the questions

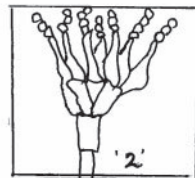
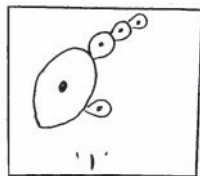
Cell	Cell Wall	Cell Membrane	Plastids	Nucleus
Cell A	absent	present	absent	present
Cell B	present	present	absent	absent
Cell C	present	present	present	present

(i) Identify the following in the table :

(1) Plant Cell (2) Animal Cell

(ii) Classify the cells A, B and C as prokaryotic and eukaryotic cells. Give reason to support your answer.

(c) The diagrams given below represent two types of fungi. Each plays a significant role in two important industries - Food and Medicine



(7)

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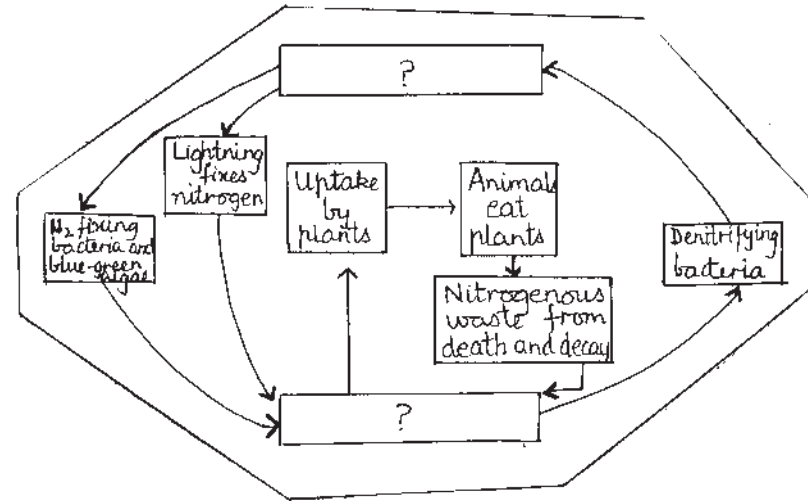
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(i) Identify the two fungi '1' and '2'.

(ii) Explain one role played by each in the two industries.

Q4. Answer the following : (5)

(a) Study the given flow chart and answer the questions that follow :



(i) What does the flow chart represent?

(ii) Complete the missing steps in the flow chart.

(iii) Name the bacterium present in the root nodules of leguminous plants. What relationship does it have with the plant?

(b) Justify the use of following food preservation methods-

(i) use of sugar / salt

(ii) pasteurisation

(8)