

AMRITA VIDYALAYAM

AMRITA PRE BOARD EXAMINATION 1 - 2017 -'18

Class : X

Marks : 80

Time : 3 hrs

SCIENCE

GENERAL INSTRUCTIONS :

- (i) The question paper comprises of two sections, A and B. You are to attempt both the sections.
- (ii) All questions are compulsory.
- (iii) All questions of Section A and B are to be attempted separately.
- (iv) There is an internal choice in two questions of three marks each and one question of five marks.
- (v) Question numbers 1 and 2 in Section A are one mark question. They are to be answered in one word or in one sentence.
- (vi) Question numbers 3 to 5 in Section A are two marks questions. These are to be answered in 30 words each.
- (vii) Question numbers 6 to 15 in Section A are three marks questions. These are to be answered in about 50 words each.
- (viii) Question numbers 16 to 21 in Section A are 5 marks questions. These are to be answered in 70 words each.
- (ix) Question numbers 22 to 27 in Section B are based on practical skills. Each question is a two marks question. These are to be answered in brief.

SECTION - A

1. Why is DNA copying necessary during reproduction?
2. Write one point of difference between trypsin and pepsin.
3. An element in the periodic table has an atomic number 11. Write the electron configuration. What is its valency? To which group and period does it belong?
4. An object is placed at a distance of 15 cm from a convex lens of focal length 30 cm. Find the position and hence list the nature of image.
5. Name the gases present in biogas. List two advantages of using biogas over fossil fuel.
6. What is an electric generator? State and explain the principle of generator. What is the advantage of AC over DC?

OR

- What is an electric fuse? Which material is used as fuse wire? How it is connected in the circuit? How is earthing of appliance useful?
7. Draw a circuit diagram in which two resistors 2W and 4W connected in series and 6W parallel with the series combination and a battery of 4 cells each of 2V, an ammeter and a plug key all connected in series. Also connect a voltmeter across this combination. Find the total current flowing through the circuit.
 8. A student heated a colourless compound of lead metal and noted the evolution of a brown gas 'X'. Name the gas 'X' and the type of the reaction. Write the balanced equation for this chemical change.

9. Write the molecular structure of an alcohol with two carbon atoms. How does it react with $\text{Con H}_2\text{SO}_4$? Name the alcohol and the products of the reaction.
10. Name the process of transportation of food through phloem tissue. How is the transport of water in xylem tissue different from the transport of food through phloem tissue?

OR

Explain the breakdown of glucose in the presence of oxygen.

11. A group of grasshoppers-some green and some brown-lived in a grassland having dry bushes and dry grass.
- Which one could normally be picked up by predatory birds and why?
 - Population of which grasshoppers will increase?
 - Name this phenomenon.
12. If the image formed by a mirror for all positions of the object placed in front of it is always diminished, erect and virtual, state the type of mirror and write one use of such mirrors. Justify your answer with the help of diagram.
13. What is the chemical formula of gypsum? What happens when it is heated? Write any two uses of the product formed.

OR

A metal compound reacts with an acid to form CaCl_2 and a gas which turns lime water milky. Identify the metal compound and write the reactions involved.

14. How does Mendel's experiment show that traits are inherited independently?
15. Our government launches campaigns to prevent female foeticide and takes initiative to spread women empowerment program.
- Why prenatal sex determination is prohibited by law?
 - Which kind of value is government trying to develop in citizens by conducting the above programs?
16. Describe an activity to demonstrate the force acting on a current carrying conductor when placed in a magnetic field with the help of a diagram. Also show the effect of change in the direction of magnetic field and change in the direction of current. State the rule to find the direction of force.
17. An organic compound 'A', widely used as a preservative in pickles, has a molecular formula $\text{C}_2\text{H}_4\text{O}_2$. This compound reacts with ethanol to form a sweet smelling compound 'B'.
- Identify compound 'A'.
 - Write the chemical equation for the reaction between 'A' and ethanol to form 'B'.
 - How can we get sodium salt of A from B? Write the chemical equation.
 - Name the two reactions.
18.
 - Draw a neat labeled diagram of human brain.
 - How is brain protected from injury or shock?
19. Hari cannot see the near objects clearly and needs a lens of power +5D.
- What type of defect of vision is he suffering from?
 - What type of lens is it and find its focal length?
 - What are the causes of this defect?
 - Draw the diagram to show
 - the defect of vision.
 - the correction.
20. Explain why
 - ionic solids conduct electricity in the molten state but not in the solid form.
 - acids are kept in glass bottles but not in zinc or copper vessels.
 - sodium metal is kept in kerosene oil.

Mention difference between calcination and roasting.

21. a) What is meant by food chain?
b) Give reason to justify the following.
(i) The existence of decomposers is essential in biosphere.
(ii) The number of trophic levels in a food chain is limited.
(iii) Flow of energy in a food chain is unidirectional.

OR

Water is an elixir of life, a very important natural resource. Your science teacher wants you to prepare a plan for an activity, 'How to save water, the vital natural source'.

- a) Write any two ways you will suggest to bring awareness in your neighborhood on how to save water.
b) List three advantages of underground water.

SECTION - B

22. While performing an experiment with pH paper a student observed values 4,5, 7 and 1 for solutions A, B, C and D respectively.
a) Which solution is neutral?
b) Which solution is weakly acidic?
23. A student added a drop of phenolphthalein to liquid A and B. A remained colourless and B became pink colour. Identify A and B.
24. Draw in sequence (showing the four stages) the process of binary fission in amoeba.
25. You have to perform the experiment to identify the different parts of an embryo of a gram seed. Describe the procedure that you would follow.
26. To verify Ohm's law a student prepared a circuit and took the readings in Voltmeter and Ammeter.

Potential difference (v) in volts	1	4	6	8	10
Electric current (i) in Amperes	10	20	30	50	80

- a) Draw the graph between V and I.
b) From the graph can you verify Ohm's law?
27. Draw the diagram to show the refraction through the glass slab. Why do the incident ray and emergent ray parallel to each other?