AMRITA VIDYALAYAM
ANNUAL EXAMINATION 2017 -'18

Class : IX **Marks : 80**
Time : 3 hrs

SCIENCE

> **GENERAL INSTRUCTIONS :**
> i) The question paper comprises two sections, A and B. You are to attempt both the sections.
> ii) All questions are compulsory.
> iii) All questions of section A and section B are to be attempted separately.
> iv) There is an internal choice in two questions of three marks each and one question of 5 marks.
> v) Question numbers 1 and 2 in section A are one mark questions. 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 2 mark question. These are to be answered in brief.

SECTION - A

1. What is meant by genetically modified crops?
2. Sound waves are mechanical waves. Give reasons?
3. a) What do you mean by frequency of a wave? Give its SI unit.
   b) Give any two uses of ultra sound?
4. 'Uniform circular motion is an accelerated motion'. Do you agree with this statement? Give reason.
5. The volume of 75 g of a substance is 25 cm^3. If the density of water is 1g/cm^3, will the substance float or sink? Give reason.
6. Give reason.
   a) Naphthalene balls disappear if kept in air for a few weeks.
   b) Wet clothes do not dry easily on a rainy day.
   c) The temperature of water remains constant during boiling.
7. Calculate the molar mass of
   a) Water (H_2O).   b) Nitric acid (HNO_3).   c) Methane (CH_4).
8. An iron sphere of mass 10 kg is dropped from a height of 80 cm. If the downward acceleration of the ball is 10 m/s^2, calculate the momentum transferred to the ground by the ball.

   OR

   A stone is dropped from the top of a tower 500 m high into a pond of water at the base of the tower. When is the splash heard at the top? Given g = 10 m/s^2 and Speed of sound = 340 m/s.
9. A stone lying at the edge of a road falls down in to a river, flowing below the road. If the stone takes 2 seconds to reach the river, then find
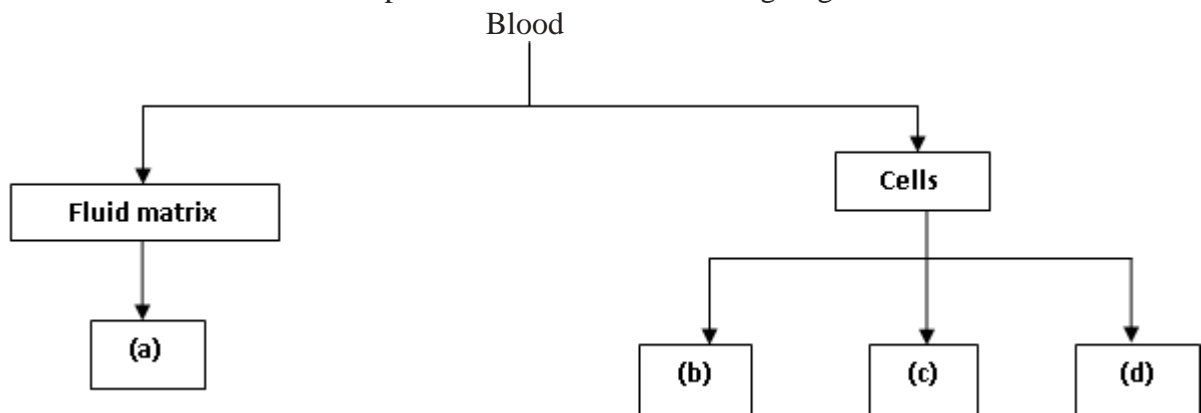   a) the speed with which the stone strikes the water surface in the river.

b) the average speed of the stone at the end of the fall.

c) the height of the road from the river (Take g = 10 m/s).

10. Write three differences between gymnosperms and angiosperms.

<div align="center">OR</div>

a) List any two benefits of classification.

b) How monera differ from fungi?

11. a) Farmer 'X' planted soya bean + maize + cowpeas in the same field simultaneously in a set raw pattern. Farmer 'Y' plants in cereal crops in one season and leguminous plants in next season on the same place of land in pre-planned secession. Name the cropping pattern used by farmer X and Y.

b) State two advantages of different cropping pattern followed by farmers X and Y.

12. a) Define.   (i) Atomic number   (ii) Mass number

b) What is the name given to the number of protons and neutrons present in the nucleus of an atom?

c) Does the atomic number of the element change when its atom gets converted into cation and anion?

13. Describe carbon cycle.

14. List any 3 human activities which would lead to an increase in the carbon dioxide content of air.

15. Mention the different components of blood in the following diagram.

16. Classify the following as a physical or a chemical change. Give reason.

a) Drying of a shirt in the sun.

b) Rising of hot air over a radiator.

c) Burning of petrol in an engine.

d) Churning of milk cream to get butter.

e) Change of colour of iron bar on strong heating.

17. a) Draw the shape of velocity-time graph for a uniformly accelerated motion and derive the relation v = u + at.

b) State 'law of inertia'. When a motor car makes a sharp turn at a high speed, we get thrown to one side. Give reason.

18. The following data represents the distribution of electrons, protons and neutrons in atoms of 4 elements A, B, C, D.

element	proton	neutron	electron
A	19	21	19
B	17	18	17
C	17	20	17
D	18	22	18

Answer the following questions.

a) Describe the electronic distribution in atom of element B.

b) Is element B a metal or a non-metal? Why?

c) Which two elements form a pair of isotopes?

d) Which two elements form a pair of isobar?

e) Give any two applications of isotopes.

19. Do all cells of our body look alike in terms of shape, size and structure? What similarities do they have? Illustrate by drawing diagrams of various cells present in human body.

20. a) Write the differences between

(i) Infectious and non-infectious diseases.   (ii) Vaccines and antibiotics.

(iii) Vertebrates and aves.

b) What precaution can you take in your school to reduce the Incidence of infectious diseases? Mention any three points.

<div align="center">OR</div>

Akhilesh is having headache and fever. He takes some pills to bring down the fever and headache before going to the doctor. What is this type of treatment called? How can we reduce the effects of the disease? What is the limitation of this type of treatment? What is the possible remedy of these diseases?

21. a) Find the energy possessed by an object of mass 10 kg when it is at a height of 15 m above the ground. (Given $g = 10\,m/s^2$)

b) Two girls each of weight 400 N climb up a rope through a height of 8 m. We name one of the girls A and other B. Girl A takes 20 s and Girl B takes 50 s to complete this task. What is the power expended by each girl?

SECTION - B

22. Write any two characteristic features of Ascaris.

<div align="center">OR</div>

Draw the diagram of a bony fish and label the parts.

23. Write any two precautions for preparing stained temporary mounts of onion peel.

24. A mixture of sand, chalk powder and common salt is dissolved in water and then filtered. Name the substance left on filter paper. Name the substance in the filtrate.

25. A solution of Barium chloride containing 2.08 g of the salt is mixed with the solution of sodium sulphate, when the products formed as Barium sulphate (2.33g) and Sodium chloride (1.17 g). Calculate the amount of Sodium Sulphate.

26. When a rectangular block is immersed in water, the water level changed from 30 ml to 45 ml. The mass of rectangular block is 30 g. Find out the density of the block?

27. When an object is weighed in spring balance, it reads 40g (in air). When the object is immersed in water, the spring balance reads 36 g. Find the up thrust of water if the same object is dipped in salt water? Comment on up thrust exerted.