RISE OF NATION ACADEMY

"We Create the Impeccable Creature"

Test Paper

Standard – IXth

Subject – Science

Date – 20/01/2019   **Time – 03:00 hrs.**

Max. Marks - 80   **Min. Marks – 40**

Section A

1. What is intercropping? (1)

2. Define biogeochemical cycle. (1)

Section B

3. List any three human activities which could lead to an increase in carbon dioxide content of air. (2)

OR

Explain the role of the Sun in the formation of soil.

4. What is the significance of electronic configuration of an atom? (2)

5. Which of the following situations indicates Newton's first law of motion:

(a) A ball thrown upwards reaches a point and then starts falling.

(b) Passengers of the car feel a jerk when the driver applies emergency brakes.

(c) A gunman moving backwards as soon as the gun shoots a bullet.

(d) Formation of ripples on the surface of the lake when a stone is thrown into it. (2)

Section C

6. State the observations from the α-particle scattering experiment which led Rutherford to make the following conclusions: (3)

a. Most space in an atom is empty.

b. Entire mass of an atom is concentrated at its centre.

c. Centre is positively charged. **7.** Explain any three methods of weed control. (3)

OR

What is green manuring? List two commonly used green manure crops and name two macronutrients provided by green manure.

8. Give reasons: (3)

(a) A gas completely fills the vessel in which it is kept.

(b) A gas exerts pressure on the walls of the container.

(c) A wooden table should be called a solid.

9. Define and explain the differences between (3)

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(a) Distance and displacement

(b) Speed and velocity

10. Although a stone and the Earth attract each other with equal force, why do we observe that only the stone falls towards the Earth but not the Earth rising towards the stone? Explain. (3)

11. A wooden cuboid has a mass of 8 kg. The length, breadth and height of this wooden cuboid are 100 cm, 50 cm and 20 cm, respectively. Find the pressure on the floors on which this block is kept. (3)

OR

Calculate the force of gravitation due to the Earth on a ball of 2 kg mass lying on the floor. Consider the mass of the Earth = 6×10^{24} kg, radius of the Earth = 6400 km and universal gravitation constant G = 6.7×10^{-11} Nm^2/kg^2. (3)

12. A silver ornament of mass 'm' gram was polished with gold equivalent to 1% of the mass of silver. Calculate the ratio of the number of atoms of gold and silver in the ornament. (3)

OR

Write the chemical formula of the following using the criss-cross method: (3)

a. Ammonium sulphate

b. Magnesium bicarbonate

c. Barium nitrate www.topperlearning.com 3

13. The doctor diagnosed that Lata has lost the power of fighting any infection. (3)

(a) Name the disease Lata is suffering from.

(b) Name the pathogen responsible for the cause of the disease.

(c) Mention any two modes of transmission of the disease from one person to another.

14. Why does the skin of your fingers shrink when you wash clothes for a long time? (3)

15. We know that carbon dioxide is essential for photosynthesis in plants. Yet, why do we consider it a pollutant? (3)

Section D

16. (a) Define the terms and give one example of each:

(i) Bilateral symmetry

(ii) Coelom

(iii) Diploblastic

(b) Identify the group of animals with

(i) Spiny body and radial body symmetry

(ii) Four pairs of jointed legs and no wings (5)

17. (a) Work done by a force is given by the equation W = F cos θ × s. Determine and explain the effect of work done due to a gradually increasing angle 'θ'.

(b) A car is being driven by a force of 5×10^{10} N. It takes two minutes with the speed of

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10 m/s for this car to reach the river side. Calculate the work done. (5)

OR

(a) Explain the work done by a person in the following conditions:

i. When he is standing at a place holding a suitcase in his hand.

ii. When he is moving, holding the suitcase in his hand.

(b) A certain household has consumed 250 unit of energy during a month. How much energy is consumed in joules?

18. Distinguish between true solution and colloid. (5)

OR

(a) What is an octet? How does an element reach an octet state? (3)

(b) Draw a schematic atomic structure of magnesium and phosphorus (Number of protons of magnesium = 12, phosphorus = 15). (2)

19. (a) A man weighs 300 N on the surface of the Earth. If he were taken to the Moon, his weight would be 50 N. Calculate the mass of this man on the Moon ($g = 10$ m/s2). (3)

(b) A man hears an echo of thunder 2 seconds after lightning strikes. Calculate the distance of lightning from the man (Speed of sound in air = 330 m/s). (2)

20. (a) How does cork act as a protective tissue? (5)

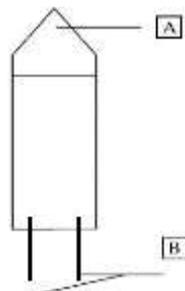(b) Observe the figure carefully and label the parts marked A and B.
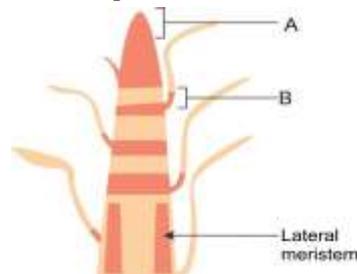
OR

(a) Write the location and function of collenchyma tissue.

(b) Draw a diagram of collenchyma tissue and label any four of its parts.

(c) Identify the region of the stem marked 'A' in the diagram below and the type of simple permanent tissue found in this region.

(d) Mention any two characteristic features of the cells found in this tissue.

21. What happens when sugar is dissolved in water? Where does the sugar go? What

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information do you get about the nature of matter from the dissolution of sugar in water? (5)
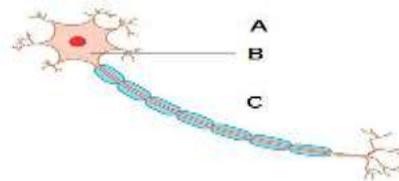
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Section E

22. Observe the figures A, B and C. (2)
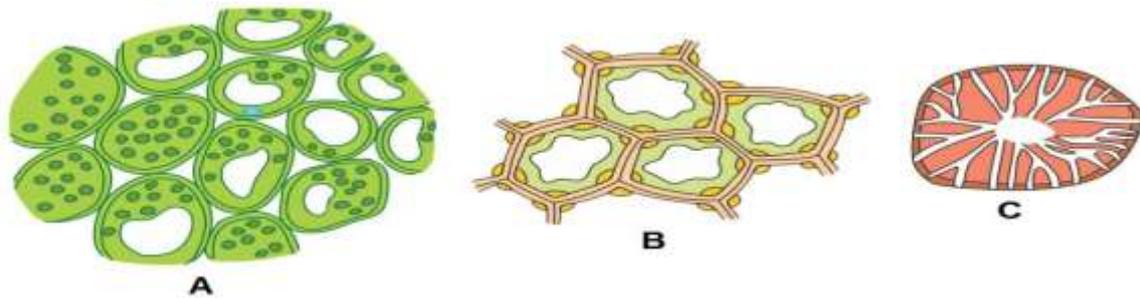
(a) Which of these tissues provide both mechanical strength and flexibility?
(b) Which of these tissues can be modified to form air cavities in aquatic plants?

OR

Deepa was asked to draw the structure of a neuron as observed under a microscope. Observe the figure drawn by her and answer the questions based on it.

(a) Identify A, B and C.
(b) What is the function of part A?

23. Rishi observed a permanent slide of *Spirogyra*. (2)

(a) Which cell organelles can be clearly seen and labelled from this slide?
(b) To which group of plants does *Spirogyra* belong? www.topperlearning.com 6

24. Identify two clear and transparent solutions from the following:

(a) Milk and water
(b) Sugar and water
(c) Starch and water
(d) Alum in water
(e) Egg albumin and water
(f) Chalk powder and water (2)

OR

In test tube one, 5 g of zinc dust was taken. In test tube two, 5 g of granulated zinc was taken. 10 ml of dilute sulphuric acid was added to each test tube. Identify the gas evolved during the reaction and comment on the rate of evolution of gas in both test
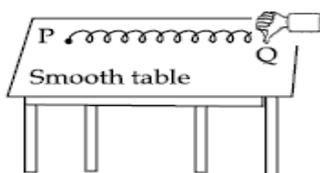
tubes.

25. What happens when solutions of sodium sulphate and barium chloride are mixed?
Give the reaction. (2)

26. While performing an experiment based on Archimedes principle, the following changes
were observed. What will be the volume of the stone immersed in the liquid? (2)
(a) 3.6 ml
(b) 1.5 ml
(c) 2 ml
(d) 5.1 ml

27. A student has set up a slinky on a smooth table top in the manner shown below. How
can he produce transverse waves in the slinky by moving its free end Q? (2)
(a) At an angle of 45° with the table top
(b) Backward and forward along the length of the slinky
(c) Up and down
(d) Left and right

OR

(a) If we place the porous surface at the back of the hollow tubes in the experimental
setup of the reflection of sound, then
(A) Sound will be heard with greater intensity than the incident sound.
(B) Sound will be heard with lesser intensity than the incident sound.
(C) Reflection of sound does not take place.
(D) Reflected sound will remain the same as incident sound.
(b) Explain why.