INDIAN SCHOOL SOHAR

STD IX	FINAL EXAM-(2017-2018)	Time: 3Hours
13-03-18	SCIENCE	Maximum Marks: 80

General Instructions:

  i. The question paper comprises of two Sections, **A** and **B**. You are to attempt both the sections.
  ii. The question paper consists of 27 questions. **All** questions are **compulsory.**
  iii. All questions of Section, **A** and all questions of Section **B** are to be attempted separately.
  iv. Question numbers 1to2 in Section **A** are one- mark questions. These are to be answered in one word or one sentence.
  v. Question numbers 3to5 in Section **A** are two- marks questions. These are to be answered in 30 words each.
  vi. Question numbers 6 to 15 in Section **A** are three- marks questions. These are to be answered in about 50 words each.
  vii. Question numbers 16 to 21 in Section **A** are five- marks questions. These are to be answered in about 70 words each.
  viii. Question numbers 22 to 27 in Section **B** are two- marks questions based on practical skills.These are to be answered in brief.
  ix. There is no overall choice. However, an internal choice is provided in two questions of 3 marks each and one question of 5 marks.
  x. Wherever necessary, the diagrams drawn should be neat and properly labelled.

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SECTION A

1. What are the modification introduced by Carl Woese in the classification of kingdom Monera?   1

2. Name two cell organelles which contain their own genetic material.   1

3. a) Define thrust.

   b) A boy of mass 40kg is standing on loose sand. If the area of his feet is 400cm², then calculate the pressure exerted by the boy on the sand. (g=10m/s²)   2

4. Give reason for the following:
   a) An athlete runs a certain distance before taking a long jump.
   b) It is difficult for a fireman to hold a hose which ejects large amount of water at high velocity. 2

5. List any four activities that you think would lead to air pollution.   2

6. a) What kind of waves are sound waves?
   b) Show graphical representation of a sound wave and mark the points of compression and rarefaction.
   c) How is ultrasound used to clean the parts of electronic components or spiral tubes?   3

7. a) Write the mathematical expression of the universal law of gravitation.

   b) A ball is thrown vertically upwards and it returns to the thrower after 6 sec (g=9.8m/s²).
      Find: i) the velocity with which it was thrown up
            ii) the maximum height it reaches
   iii) its position after 4 seconds   3

OR

a) Define free fall and acceleration due to gravity.

b) The mass of the sun is 2×10^{30} kg and mass of the earth is 6×10^{24} kg. If the distance between the centre of the sun and the earth is 1.5×10^{8} km, calculate the force of gravitation between them.

8. The velocity – time graph shown below represents the motion of a body:
   a) During which time interval, does the body move with maximum acceleration?
   b) Calculate the average velocity for the entire journey. 3
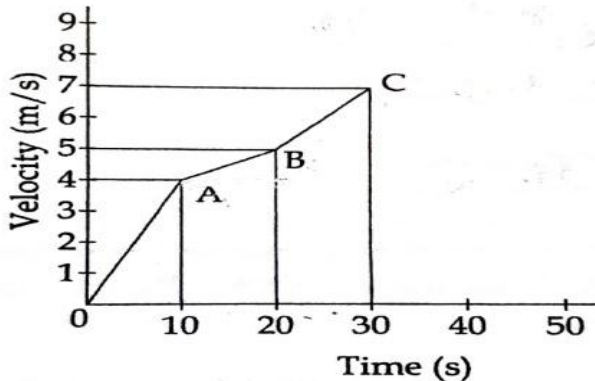
9. Write appropriate term for the following:-

   a) Tissue that connect muscles to bone.

   b) Animal tissue that helps in repair of tissues and fill the space inside the organ.

   c) The plant tissue found in the husk of coconut. 3

10. a) Draw a neat diagram of a prokaryotic cell and label the following parts.

    i) Nucleoid   ii) Ribosomes

   b) What happens when a living plant cell is placed in a hypertonic solution? Name the process. 3

11. Raju was playing cricket on the ground with his friends. One of his friends standing near the boundary felt something biting his feet. Subsequently he started crying in pain. Raju being class IX student identified the creature as centipede and helped in removing it

    a) Name the phylum to which centipede belongs.

    b) Write two identifying features of the phylum.

    c) Enlist two values shown by Raju. 3

12. a) Differentiate between inter-specific and inter-generic hybridization.

   b) Why would a cattle breeder choose to cross breed a Jersey cow with a Red Sindhi cow? State two reasons. 3

2

13. a) Write the scientific name of any two local varieties of bees used for commercial honey production.

   b) State any two reasons of introducing *Apis mellifera* in a bee farm.   3

14. Account for the following:
   a) For any physical state, the temperature remains constant during the state of change.
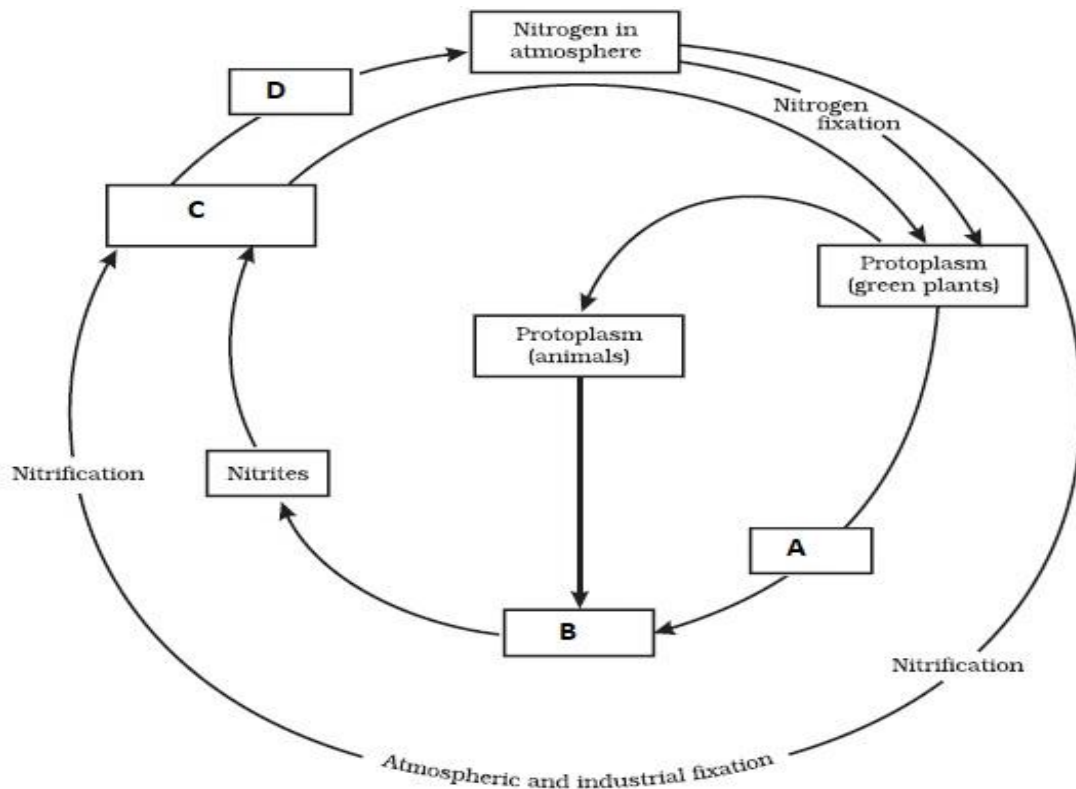   b) We are able to sip hot tea from a saucer than a cup.
   c) When sugar crystals dissolve in water, level of water does not rise appreciably.

OR

   With the help of a diagram explain in brief an activity to show that particles of matter are very small.   3

15. a) Study the given figure of nitrogen cycle and mention what do A, B, C, D represent.

   b) Write the role of N_2 fixing bacteria in the biosphere.   3

16. a) State the law of constant proportions.

   b) Show that CO_2 illustrates the law of constant proportions.

   c) Write the chemical formula of aluminium sulphate.

   d) Name one element each which forms diatomic and tetra atomic molecule.

   e) Calculate mass of 3.011×10^{23} number of nitrogen atoms (Atomic mass of N = 14u).   5

17. a) Give reason for the following:

    i) an alloy is regarded as a mixture.

    ii) path of a beam of light is not visible through a solution.

  b) 110g of salt is present in 550g of solution. Calculate the concentration of solution.

  c) Draw a flow diagram showing the process of obtaining gases from air.   5

18. a) State Newton's second law of motion. How does the second law give us a method to measure force?

  b) A man pushes a box of mass 50kg with a force of 80N. What will be the acceleration of the box due to this force? What would be the acceleration if the mass was halved?   5

19. a) Define gravitational potential energy. Derive an expression for gravitational potential energy possessed by an object of mass 'm' at a height of 'h'. Also state the SI unit of potential energy.

  b) A ball of mass 400g is thrown vertically upwards to a height of 25m from the ground. Find the potential energy possessed by it at the highest point (g=10m/s²). What will be its kinetic energy at the highest point? Give reason for your answer.   5

20. a) Isotopes of an element are chemically similar. Give reason.

  b) List two main features of Rutherford's model of an atom.

  c) Draw Bohr model for sulphur atom.

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

Element	Protons	Neutrons	Electrons
A	19	21	19
B	17	18	17
C	17	20	17
D	18	22	18

  Answer the following questions:

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

    ii) Is element A, a metal or a non-metal?

    iii) Which two elements form a pair of ISOTOPES?

    iv) Which two elements form a pair of ISOBARS?   5

21. a) It was diagnosed that Rita suffers from Japanese encephalitis.
   i) Which organ of Rita's body is affected?
   ii) Name the vector of this disease.
   iii) Making antiviral medicine is harder than making antibacterial medicine. Give reason.
   b) 'Prevention is better than cure'. Justify the statement with any two reasons.

OR

a) It was diagnosed that a person has lost the power of fighting any infection.

   i) Name the diseases the person is suffering from.
   ii) What is the pathogen responsible for the disease?
   iii) Write any two modes of transmission of this disease.
   b) i) What is inflammation?
   ii) Give one local and one general effect of inflammation process.   5

SECTION B

22. A longitudinal pulse is produced in a slinky. The frequency of the pulse is 120Hz and it travels at a speed of 0.6m/s. Calculate the separation between consecutive compressions.   2

23. An object when placed in three different liquids rests in different positions as shown in the figure. Compare the densities D1, D2 and D3 of the liquids.   2
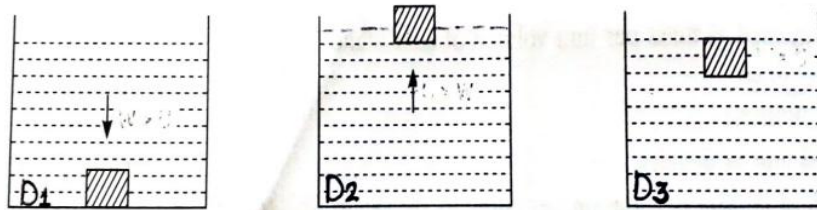
24. What happens when the copper sulphate crystals taken into dry test tube are heated? Write the equation for the reaction.   2

25. Name four substances which can be removed from a mixture of sand by sublimation.   2

26. The teacher had shown the student a slide of Spirogyra. Mention any two features that enabled the student to identify the organism.   2

27. A student was asked to prepare a temporary mount of an onion peel. Write any two precautions followed while preparing the slide.   2

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