V & C Patel English School
Half Yearly Exam

Std.: IX

Subject: Science

Max Marks: 70
Date:18/09/2017
Time: 3 hrs.

General Instructions :

There are 27 questions. All questions are compulsory.
Question 1-2 (1Mark) , 3-5 (2 Marks) , 6-15 (3 Marks) , 16-21 (5 Marks),
22-27 (Practical based each of 2 Marks)

Q-1   State two important fuctions of the nucleus of the cell.

Q-2   What is the function of waxy covering on the epidermis of aerial parts of the plants?

Q-3   Give scientific reasons.

(1) Inner membrane of mitochondria is deeply folded.

(2) Lysosomes are known as suicidal bags of the cell.

Q-4   A solution of alcohol in water has been prepared by mixing 150 ml of alcohol(solute) with 600 ml of water(solvent). Calculate the volume percentage of the solution.

Q-5   State three equations of motion. Which of them describes :

(i) velocity – time relation?

(ii) position – time relation?

Q-6   Can physical and chemical changes occur together? Illustrate your answer.

Q-7   i) Name the technique used for the separation of those solutes that dissolve in the same solvent.

ii) Explain the technique used.

iii) Give any two applications of this technique.

Q-8   In the process of project work, two miscible liquids A and B are present in a solution.The boiling   point of A is 50^0C while that of B is 85^0C. Mayur suggests a method to separate them.Answer the following questions based on above information.

(i)   How does Mayur suggest a method to separate them?

(ii)   What are the values noticed in Mayur in doing such a job?

Q-9   What is dry ice? How is it formed?

Q-10   Define ''inertia of motion'' and ''inertia of direction'' by giving one example of each.

Q. 11 (i) What is the accepted value of ' G '?

(ii)What is the importance of universal law of gravitation?

Q. 12 A 8000 engine pulls a train of 5 wagons, each of 2000kg, along a horizontal track. If the engine exerts a force of 40,000 N and track offers a frictional force of 5000 N, then calculate.

(a) The net accelerating force

(b) The acceleration of the train

(c) The force of wagon 1 and wagon 2

OR

Q.12 A force of 5N gives a mass m_1, an acceleration of 8 m/s^2, and a mass m_2, an acceleration of 24 m/s^2. What acceleration would it give if both the masses are tied together?

Q-13 Name the organelle involved in lysosome formation. List the functions of the same organelle in the cell.

Q-14 Which element of xylem-

(i) Helps in transpot of water and minerals

(ii) Store food

(iii) Provide mechanical support

State whether they are living or dead? If so why?

Q-15 Name the cellular component of the following tissue

(i) Aerolar tissue

(ii) Cartilage

(iii) Bone

Give one function of the above mentioned tissue.

OR

Differentiate between voluntary muscles and involuntary muscles.

Q-16 List the salient feature of meristematic tissue. Classify this tissue based on their location and explain the function of each with the help of labeled diagram.

Q-17 What would happen if an animal cell is placed in hypotonic, hypertonic and isotonic solutions? Explain each situation with the help of labeled diagram.

Q-18 Distinguish solids, liquids and gases in a tabular form under the following characteristics:

(i) Rigidity

(ii) Compressibility

(iii) Inter-particle force of attraction

(iv) Inter-particle spaces

(v) Kinetic energy of particles

Q-19 i) How can we separate the mixture of two miscible liquids? Explain using a diagram.

ii) List three advantages of this method.

OR

How water is purified in the water works system ? Explain using a diagram and list the process involved.

Q-20 Mathematically show that during collision of two balls, total momentum of the system remains constant.

Q. 21 (i) Write three differences between mass of an object and its weight.

(ii) Gravitational force acts on all objects in proportion to their masses. Why then a heavy object does not fall faster than a light object?

Q.22 To establish relationship between weight of a rectangular wooden block lying on a horizontal table and the minimum force required to just move it using a spring balance.

(i) A wooden block is lying on the horizontal surface of a table then which are the forces acting on this wooden block .

(ii) On what does Action and Reaction act .

Q.23 Write any two precautions to be taken during the experiment.

Q-24 Why does honey diffuse in a water at a slower rate than ink?

Q-25 Why do the liquids like ether and acetone are kept in cool places?

Q-26 How can you calculate the magnification power of microscope which you have used during practical?

Q-27 Why is staining done prior to mounting? Name the stain which you have used for staining onion peel cells and human cheek cell.