

Punjabi Colony (Dharampur) Samastipur. 848101 (Bihar)
Half Yearly Examination- 2019-20

Class :- IX
Sub :- Science

Time :- 3 hrs
F.M. :- 100

Physics

1. A bus decreases its speed from 80km/h to 60km/h in 5seconds.
Find the acceleration of the bus. 2
2. When a carpet is beaten with a stick, dust comes out of it ? Explain. 2
3. How does the force of gravitation between two objects change when the distance between them is reduced to half ? 2
4. A motor boat starting from rest on a lake accelerates in a straight line at a constant rate of 3.0m/s^2 for 8seconds. How far does the boat travel during this time ? 2
5. State which of the following situations are possible and give an example of each of the following. 3
 - (a) An object with a constant acceleration but with uniform velocity.
 - (b) An object moving in a certain direction with an acceleration in the perpendicular direction .
6. Why is it advised to tie any luggage kept on the roof of a bus with a rope ? 3
7. What is the magnitude of the gravitational force between the earth and a 1kg object on its surface ? (Mass of the earth = $6 \times 10^{24}\text{kg}$ and radius of the earth is $6.4 \times 10^6\text{m}$). 3
8. What is the importance of universal law of gravitation ? 3
9. A stone is thrown vertically upward with an initial velocity of 40m/s. Taking $g = 10\text{m/s}^2$. Find the maximum height reached by the stone. What is the net displacement and the total distance covered by the stone ? 5
10. A truck starts from rest and rolls down a hill with a constant acceleration. It travels a distance of 400m in 20seconds. Find its acceleration. Find the force acting on it if its mass is 7 metric tonnes. 5
11. (a) An artificial satellite is moving in a circular orbit of radius 42250 km. Calculate its speed if it takes 24hrs to revolve around the earth.
(b) A ball is gently dropped from a height of 20m. Is its velocity increases uniformly at the rate of 10m/s^2 . With what velocity will it strike the ground ? After what time will it strike the ground ? 5

Chemistry

1. State three reasons why you think air is a mixture and water is a compound. 1
2. Name the technique to separate. 1
 - (i) butter from curd
 - (ii) salt from sea water
 - (iii) camphor from salt
3. What type of clothes should we wear in summer ? 1
4. What is Tyndall effect ? 1
5. What is meant by chromatography. 1

6. Define (i) solute, and (ii) solvent. 1
7. Classify the following as physical or chemical changes. 1
 - (i) cooking of food
 - (ii) melting of ice
 - (iii) cutting of tree
 - (iv) digestion of food
 - (v) boiling of water
8. What are the characteristics of the particles of matter. 1
9. Name the three states of matter. Give two example of each. 1
10. Why does our palm feel cold when we put some acetone or petrol or perfume on it. 1
11. What is the physical state of water at. 1
 - (i) 25°C
 - (ii) 0°C
 - (iii) 100°C
 - (iv) 250°C
12. What is the difference between colloids and suspensions. 1
13. What is the difference between miscible liquids and immiscible liquids. 1
14. What is Brownian motion? Draw a diagram to show the movement of a particle during Brownian motion. 2
15. A solution contains 60g of common salt in 360g of water. Calculate the concentration in terms of mass by mass percentage of the solution. 2
16. What is meant by (i) homogeneous mixtures and (ii) heterogeneous mixtures? 2
Give two examples of homogeneous mixtures and two of heterogeneous mixtures.
17. (i) What is a physical change? Give two examples of physical change. 2
(ii) What is a chemical change? Give two examples of chemical change. 2
18. What is fractional distillation? What is the use of fractionating column in fractional distillation. 2
19. What are (i) metals (ii) non-metals and (iii) metalloids? Give two examples each of metals, non metals and metalloids. 2
20. Classify the following into elements, compounds and mixtures. Marble, Air, Gold, Brass, Sand, Diamond, Graphite, Petroleum, Common salt, sea water. 2
21. What is meant by (i) elements (ii) compounds (iii) mixtures? 2
22. What is evaporation? State the various factors which affect evaporation. 2
23. Compare the properties of solids, liquids and gases in tabular form. 2
24. Convert the temperature of 300 K to the celsius scale. 2

Biology

1. What are the function of stomata? 6
2. What Precautions would you take in your school to reduce incidence of infectious disease? 6
3. If the organisation of a cell is destroyed due to some physical or chemical influence what will happen. 6
4. What are the specific functions of cardiac muscle? 6
5. Diagrammatically show the difference amongst three types of muscle fibre. 6

Handwritten mathematical derivations for the area of a circle:

$$F = \frac{C \times m}{r^2} = \frac{2\pi r \times m}{r^2} = \frac{2\pi m}{r}$$

$$F = \frac{C \times m}{r^2} = \frac{2\pi r \times m}{r^2} = \frac{2\pi m}{r}$$

$$F = \frac{C \times m}{r^2} = \frac{2\pi r \times m}{r^2} = \frac{2\pi m}{r}$$