

साधना देवी विद्यापीठ

Punjabi Colony (Dharampur) Samastipur. 848101 (Bihar)

Half Yearly Examination- 2018-19

Class :- IX
Sub Science

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

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PHYSICS

1. Define the term impulsive force. 1
2. An athlete completes one round of circular track of a diameter 200m in 40 sec. What will be the distance covered and the displacement at the end of 2 min 20 sec ? 2
3. Explain how sound is produced by your school bell ? 2
4. What do you mean by law of conservation of momentum ? 2
5. If action is always equal to the reaction, explain how a horse can pull a cart. 2
6. Under what condition (s) is the magnitude of average velocity of an object equal to its average speed ? 3
7. What are wavelength, frequency, time-period and amplitude of a sound wave ? 3
8. Explain why some of the leaves may get detached from a tree if we vigorously shake its branch. 3
9. How are the wavelength and frequency of a sound wave related to its speed ? 3
10. Prove the motion of equation :- 5
 - (i) $S = ut + \frac{1}{2} at^2$
 - (ii) $V^2 = U^2 + 2as$
11. (i) Distinguish between loudness and intensity of a sound. 5
(ii) Calculate the wave-length of a sound wave whose frequency is 220 Hz and speed is 440 m/s in a given medium. 5
12. (i) A stone of 1 kg is thrown with a velocity of 20m/s across the frozen surface of a lake and come to rest after travelling a distance of 50m. What is the force of friction between the stone and the ice ? 5 1/2
(ii) A 8000 kg 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 the track offers a friction force 5000 N. then calculates. 5
 - (a) The net accelerating force.
 - (b) The acceleration of the train and
 - (c) The force of wagon 1 on wagon 2.

Chemistry

"All Questions are compulsory"

(Question- (1 to 5) 2 marks each.)

1. A diver is able to cut through water in a swimming pool. Which property of matter does this observation show ?
2. What are the characteristics of particles of matter ?
3. Give reasons.
 - (a) A gas fills completely the vessel in which it is kept.
 - (b) A wooden table should be called a solid.
4. What is the physical state of water at
 - (a) 250°C
 - (b) 100°C

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5. Why does a desert cooler cool better on a hot dry day?
(Question (6 to 10) 3 marks each.)
6. Difference between homogeneous and heterogeneous mixture with example.
7. How are solution and suspension different from each other?
8. To make saturated solution, 72 g of sodium chloride is dissolved in 100g of water at 293K, find the concentration at this temperature.
9. Name the technique to separate.
- (a) Butter from curd.
- (b) Salt from sea-water.
- (c) Camphor from salt.
10. Write the steps you would use for making tea. Use the words, solution, collect, solute, dissolve, soluble, insoluble, filtrate and residue.

Handwritten notes for Q8:
 $\frac{72}{100}$ 1st we take tea leaf/tea collect dissolve
 32
 32
 32
 96
 32
 196

- (Question (11 to 12) 5 marks each.)**
11. Explain the following with example.
- (a) Saturated solution.
- (b) Pure substance.
- (c) Colloid
- (d) Suspension.
- (e) Homoatomic molecule.

Handwritten calculations for Q11:
 $\frac{32}{5}$
 $\frac{160}{32}$
 $\frac{192}{192}$
 $\frac{196}{192}$ 6.11
 $\frac{96}{32}$
 $\frac{60}{32}$
 $\frac{32}{29}$

12. Find the moles of atom in 196 gm of H_2SO_4
- (i) $n_{H_2SO_4}$ (moles of H_2SO_4) $n_H = 2 \times n_{H_2SO_4}$
- (ii) n_H (moles of Hydrogen)
- (iii) n_S (moles of sulphur) $n_S = 1 \times n_{H_2SO_4}$
- (iv) $n_O = 1 \times n_O$ (moles of oxygen)
- (v) n_{O_2} (moles of oxygen)

Hint, $GAM_H = 1 \text{ g/mol}$
$GAM_S = 32 \text{ g/mol}$
$GAM_O = 16 \text{ g/mol}$

$n_H = 2 \times n_{H_2SO_4}$
 $n_{H_2SO_4} = \frac{n_H}{2}$

Biology

Question (i to v) 2 marks each.

1. (i) Cell body of nerve cell is called Neuron
- (ii) A dead tissue of plant is called Anger
- (iii) Power house of the cell is called mito
- (iv) Who introduced the system of scientific nomenclature of organism Aristotle
- (v) Naked seed are found in Gym

Question (2 to 5) 5 marks each.

2. Explain the basis of grouping of organisms into five kingdom.
3. What are differences between reptiles and amphibians.
4. What is the specific function of cardiac muscle?
5. Diagrammatically show the difference amongst three types of muscle fibre.

$n_H = 2 \times n_{H_2S}$
 $n_S = 1 \times n_{H_2SO_4}$