

# FOUNDATION COURSE

## CLASS IX

### PAPER : 06

Time : 2 hrs.

Max. Marks. : 100

P<sub>R</sub> C<sub>S</sub> M<sub>K</sub> B<sub>G</sub>

#### TOPICS COVERED:

- PHYSICS** : Force & Law of Motion.  
**CHEMISTRY** : Atoms and Molecules  
**MATHS** : Heron's Formula  
**BIOLOGY** : Xylem, Phlem, Epithelial and Connective Tissue

#### GENERAL INSTRUCTIONS :

1. Paper consist of **4 Section** each for **Physics, Chemistry, Maths** and **Biology**. Answers for each question should be given in the space provided in the question paper itself.
2. Each section contains 13 questions, all questions are compulsory.
3. Question 1 - 5 are **objective type question** of 1 Mark each.
4. Question 6 - 7 consist of 1 Marks each.
5. Question 8 - 9 consist of 2 Marks each.
6. Question 10 - 12 consist of 3 Marks.
7. Question 13 consist of 5 Marks.

	Physics	Chemistry	Maths	Biology
Marks				
Total				

Name of the Student : \_\_\_\_\_

Centre : \_\_\_\_\_

Invigilator's Signature: \_\_\_\_\_

**PHYSICS**

1. A body of 2 kg is moving with a constant velocity of 20 cm/s for 4 sec. The force acting on the body is  
(a) 40 N                      (b) 0.4 N                      (c) 40 dyne                      (d) none of these                      [1]
2. Reaction due to a body depends on its  
(a) velocity                      (b) mass                      (c) acceleration                      (d) none of these                      [1]
3. A bus accelerates uniformly from rest and acquires a speed of 72 km/hr in 20 sec. The acceleration of the bus is  
(a) 10 m/s<sup>2</sup>                      (b) 5 m/s<sup>2</sup>                      (c) 2 m/s<sup>2</sup>                      (d) 1 m/s<sup>2</sup>                      [1]
4. Which of the following conclusions is correct regarding a stationary body ?                      [1]  
(a) No force is acting on the body  
(b) Vector sum of forces acting on the body is zero  
(c) The body is in vacuum  
(d) The forces acting on the body do not constitute a couple
5. When a train stops suddenly passengers in the running train feel an instant jerk in the forward direction because  
(a) the back of seat suddenly pushes the passengers forward  
(b) inertia of rest stops the train and takes the body forward  
(c) upper part of the body continues to be in the state of motion whereas the lower part of the body in contact with seat comes at rest  
(d) nothing can be said due to insufficient data                      [1]
6. Name two absolute units of force. How are they related ?                      [1]
7. What is the cause of friction ?                      [1]
8. Define impulse of a force.                      [2]

9. How displacement is different from distance ? [2]
10. A particle starts with an initial velocity  $3.0 \text{ ms}^{-1}$  along a straight line and accelerates uniformly at the rate of  $0.60 \text{ ms}^{-2}$ .
- (i) Find the distance travelled by it in the first 3 seconds.
  - (ii) How much time does it take to reach the velocity  $9 \text{ ms}^{-1}$  ?
  - (iii) How much distance will it cover in reaching the velocity  $9 \text{ ms}^{-1}$  ? [3]
11. A car travels a distance A to B at a speed of  $40 \text{ km h}^{-1}$  and returns to A at a speed of  $30 \text{ km h}^{-1}$ . Find the average speed and average velocity for the whole journey. [3]

12. A train 100 m is moving with a velocity of  $60 \text{ km h}^{-1}$ . Find the time it takes to cross the bridge of 1 m long. [3]

13. A body drops a stone from a height of 100 m which penetrates the sand at the foot of the tower to 0.03 m then the find the deceleration of the stone inside sand. [5]

1. Which of the following has valency one  
(a) Lithium (b) Sodium (c) Pottasium (d) All of the above [1]
2. One mole of carbon contains  
(a)  $6.022 \times 10^{23}$  atoms of carbon (b)  $6.022 \times 10^{22}$  atoms of carbon  
(c)  $3.011 \times 10^{23}$  atoms of carbon (d)  $3.011 \times 10^{22}$  atoms of carbon [1]
3. Valency of florine would be  
(a) 7 (b) 4 (c) 1 (d) 3 [1]
4. Number of valence electrons in carbon atom is  
(a) 2 (b) 4 (c) 6 (d) 8 [1]
5. How many electrons are present in first shell of nitrogen atoms  
(a) 2 (b) 8 (c) 18 (d) 3 [1]
6. What is avagadro's number ? [1]
7. Define valency ? [1]
8. Write short note on mole ? [2]
9. Write the electronic configuration of the following [2]  
(a)  $\text{Na}^+$  (b)  $\text{N}^{3-}$  (c) P

10. Calculate the volume occupied by 1 mole of gas ?

[3]

11. Write the difference between atoms and molecules ?

[3]

12. Write all the postulates of dalton atomic theory ?

[3]

13. Calculate the numbers of moles in each of the following.

[5]

(a) 2 g  $\text{H}_2$

(b) 34 g  $\text{NH}_3$

(c) 11.2 lit  $\text{O}_2$

1. The area of a quadrilateral ABCD in which  $AB = 3\text{cm}$ ,  $BC = 4\text{cm}$ ,  $CD = 4\text{cm}$ ,  $DA = 5\text{cm}$  and  $AC = 5\text{cm}$  is  
 (a)  $15\text{cm}^2$                       (b)  $15.10\text{cm}^2$                       (c)  $15.16\text{cm}^2$                       (d)  $15.12\text{cm}^2$                       [1]
  
2. The perimeter of the quadrilateral ABCD in which  $AB = 17\text{cm}$ ,  $AD = 9\text{cm}$ ,  $CD = 12\text{cm}$ ,  $\angle ABC = 90^\circ$  and  $AC = 15\text{cm}$  is  
 (a)  $36\text{cm}$                       (b)  $46\text{cm}$                       (c)  $50\text{cm}$                       (d)  $40\text{cm}$                       [1]
  
3. The area of the quadrilateral ABCD in which  $AB = 17\text{cm}$ ,  $AD = 9\text{cm}$ ,  $CD = 12\text{cm}$ ,  $\angle ACB = 90^\circ$  and  $AC = 15\text{cm}$  is  
 (a)  $110\text{cm}^2$                       (b)  $114\text{cm}^2$                       (c)  $116\text{cm}^2$                       (d)  $120\text{cm}^2$                       [1]
  
4. The area of a triangle whose sides are respectively  $150\text{cm}$ ,  $120\text{cm}$ , and  $200\text{cm}$  is  
 (a)  $8956.56\text{cm}^2$                       (b)  $8960.56\text{cm}^2$                       (c)  $8966.56\text{cm}^2$                       (d)  $8966.46\text{cm}^2$                       [1]
  
5. The area of the triangle whose sides are  $9\text{cm}$ ,  $12\text{cm}$ , and  $15\text{cm}$  is  
 (a)  $34\text{cm}^2$                       (b)  $50\text{cm}^2$                       (c)  $60\text{cm}^2$                       (d)  $54\text{cm}^2$                       [1]
  
6. Find the area of a triangle whose sides are  $13\text{cm}$ ,  $14\text{cm}$  and  $15\text{cm}$ .  
 [1]
  
7. Find the area of a triangle, two sides of which are  $8\text{cm}$  and  $11\text{cm}$  and the perimeter is  $32\text{cm}$   
 [1]
  
8. The perimeter of a triangular field is  $45\text{cm}$  and its sides are in the ratio  $13 : 12 : 5$ . Find the area of the triangle  
 [2]



9. Find the percentage increase in the area of a triangle if its each side is doubled. [2]
10. Find the area of the quadrilateral ABCD in which  $AB = 7\text{cm}$ ,  $BC = 6\text{cm}$ ,  $CD = 12\text{cm}$ ,  $DA = 15\text{cm}$  and  $AC = 9\text{cm}$  [3]
11. Find the area of a trapezium whose parallel sides are  $25\text{cm}$  and  $13\text{cm}$  and the other sides are  $15\text{cm}$  and  $15\text{cm}$ . [3]
12. Find the area of the quadrilateral ABCD in which  $AD = 24\text{cm}$ ,  $\angle BAD = 90^\circ$  and BCD forms an equilateral triangle whose each side is equal to  $26\text{cm}$  [3]

13. The adjacent sides of a parallelogram ABCD measure 34cm and 20cm, and the diagonal AC measures 42cm.  
Find the area of the parallelogram. [5]

## BIOLOGY

1. Odd one out (consider origin)  
(a) Epithelial tissue    (b) Connective tissue    (c) Muscular tissue    (d) Skeletal tissue    [1]
2. Which of the following blood corpuscle has bean or kidney shaped nucleus ?  
(a) RBC    (b) Platelets    (c) Monocytes    (d) Neutrophils    [1]
3. Which of the following proteins is not found in the connective tissues ?  
(a) Collagen    (b) Elastin    (c) Actin    (d) Ossein    [1]
4. Tendons connect  
(a) Nerve to muscle    (b) Bone to bone    (c) Muscle to muscle    (d) Bone to muscle    [1]
5. Membrane lining the marrow cavity is  
(a) Endosteum    (b) Periosteum    (c) Perichondrium    (d) Pericardium    [1]
6. What are the constituents of phloem ?    [1]
  
7. What are the constituents of xylem ?    [1]
  
8. How can we say that conduction of food molecules is a bidirection or multidirectional ? Explain    [2]
  
  
  
  
  
  
  
  
  
  
9. What do you understand by simple epithelium ?    [2]
  
  
  
  
  
  
  
  
  
  
10. (a) What do you understand by complex epithelium ? Explain    [3]  
(b) Explain stratified epithelium

**11.** Explain the following with the helps of diagram

**[3]**

- (i) Squamous epithelium      (ii) Chliated columnar epithelium

**12.** Write short notes on :

**[3]**

- (a) Glandular epithelium      (b) Keratinsed epithelium

**13.** Explain

**[5]**

- (i) What do you understand by connective tissues ?
- (ii) Tendons
- (iii) Ligaments
- (iv) Non keratinised epithelium