<u>Class : 9</u>   PHYSICS

1. State the Universal Law of Gravitation.

2. What is the magnitude of the gravitation force between an object of mass 2 Kg and the earth.(mass of the earth = 6×10^{24} kg, radius of the earth=6.4×10^{6} m/s).

3. Derive II equation of the graph with the help of velocity-time graph.

4. Draw the velocity –time graph of a car from the given values and calculate
   a) Acceleration of the car
   b) Distance travelled between 6th and 10th seconds.

| Velocity m/s	V	0	10	20	30	40	50	60
Time sec.	t	0	2	4	6	8	10	12

5. A ball is thrown vertically upwards. What is its momentum at the highest point ? What is the value of acceleration at this point?

6. Define momentum and give its S.I. unit.

7. (a) Define force.

   (b) The velocity-time graph of a car of 1000 kg mass is given below. (i) When is the maximum force acting on the car ? Give reason for your answer. (ii) What is the retarding force ? (iii) For how long is there no force acting ?
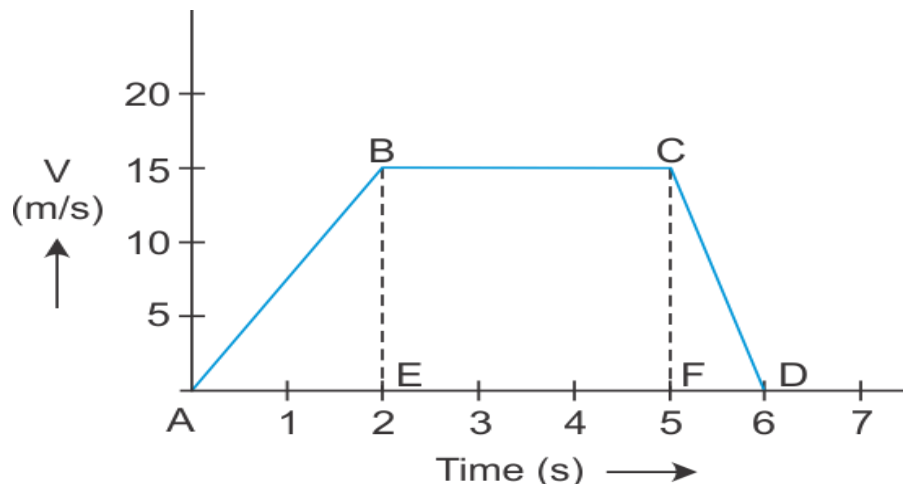
7. Derive Newton's first law of motion from Second law of motion.

8. Explain the activity involved in the following diagram.To which law is it applicable?
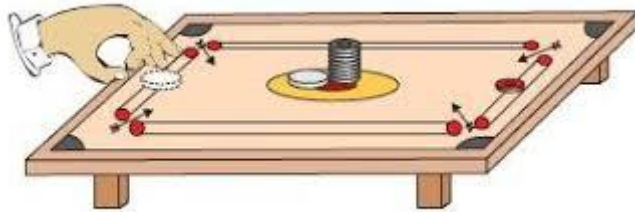
9. Why are cushion beds placed in the following picture? Explain.

10. Explain the activity below. Name the law applied in this.

11. Explain the activity below. Name the law applied in this.

12. Calculate the force required to impart a car with a velocity of 30m/s in 10 s starting from rest.

13. Explain the law of conservation of momentum in this activity. How does the momentum change in the following case?