

## Half Yearly Examination 2016-2017

Std. : VIII  
Subject : PHYSICS

Full Marks : 80  
Time : 2 Hrs.

### SECTION-A (40 Marks) (Attempt all questions)

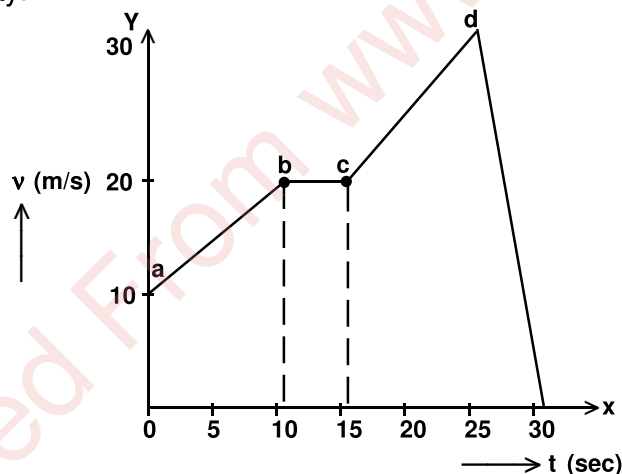
- Q1.** a) Write the S.I. Unit for the following physical quantities — [ $\frac{1}{2} \times 4 = 2$ ]
- (i) momentum
  - (ii) universal gravitational constant
  - (iii) Gravitational unit of force in M.K.S. system
  - (iv) Weight
- b) Name the factor on which inertia of a body depends and state how does it depend on the factor stated by you. [2]
- c) State and define C.G.S unit of force. [2]
- d) Calculate the magnitude of force which when applied on a body of mass 500g produces an acceleration of  $5\text{m/s}^2$ . [2]
- e) Give one word answer. [ $\frac{1}{2} \times 4 = 2$ ]
- (i) rate of change of velocity.
  - (ii) the product of mass & velocity.
  - (iii) it flows from hot body to cold body.
  - (iv) Non-conventional source of energy.
- Q2.** a) Define temperature and write its S.I. Unit. [2]
- b) Draw a velocity-time graph for — [2]
- (i) uniformly accelerated motion.
  - (ii) variable retardation.
- c) A body starts from rest with a uniform acceleration  $2\text{m/s}^2$ . Find the distance covered by the body in 2s. [2]
- d) State the effects of a force applied on (i) a non-rigid and (ii) a rigid body. How does the effect of the force differ in the two cases. [2]
- e) A ball is hanging by a string from the ceiling of the room. Draw a neat labelled diagram. Showing the forces acting on the ball and the string. [2]
- Q3.** a) Two bodies A and B of some masses are moving with velocities  $v$  and  $2v$  respectively. Compare their (i) inertia (ii) momentum. [2]
- b) What is the importance of the law of gravitation ? [2]

- c) A man weighs 600N on earth. What would be his approximate (i) weight on moon ? (ii) Mass on earth and (iii) mass on moon ? [2]
- d) A ball is released from a height and it reaches the ground in 3 sec. If  $g=9.8\text{m/s}^2$  find the height from which the ball was released. [2]
- e) Write any two differences between 'g' and 'G'. [2]

- Q4.** a) Write any two important characteristics of a source of energy. [2]
- b) Write any two non- S.I. Unit of heat and relate it with S.I. Unit of heat. [2]
- c) A cricketer pulls his hands back while catching a fast moving cricket ball. [2]
- d) When is the change-in momentum — [2]
- (i)  $m\Delta v$  (ii)  $\Delta (mv)$
- e) List any two reasons for not using tidal energy as a major source of energy. [2]

**SECTION-B (40 Marks)**  
**(Attempt any four questions)**

- Q5.** (a) Answer the following questions with the help of given v-t graph. [3]
- (i) Initial velocity.



- (ii) What type of motion is shown by the body in part Cd. [1]
- (iii) Which part of graph shows uniform velocity ? [1]
- (iv) Which part of graph shows uniform retardation ? [1]
- (v) Calculate the acceleration in part ab. [2]
- (b) (i) Write any two differences between speed and velocity other than definition. [2]
- (ii) Which has greater speed a car with velocity 1km/min or 18 km/hr. [1]
- (c) (i) Can displacement be zero even if distance is not zero ? Give one example. [2]
- (ii) A toy car initially moving with a uniform velocity of 18 km/hr comes to stop in 2 sec. Find the retardation of the car in S.I. Units. [2]

- Q6.** (a) Write any three differences between heat & temperature. [3]

- (b) (i) Name the radiation which are absorbed by the green house gases. [1+2]  
(ii) What is carbon tax ?
- (c) (i) What do you mean by thermal expansion of a substance ?  
(ii) Name two substance which contract on heating ? [4]

- Q7.** (a) Which law of Newton's give formula of force ? State the law. [3]  
(b) State the S.I. and C.G.S. unit of force and derive the relationship between them. [3]  
(c) A ball of mass 10g is moving with a velocity of 50 m/s. On applying a constant force on ball for 2.0s, it acquires a velocity of 70m/s. Calculate — (i) initial momentum (ii) the final momentum (iii) the rate of change of momentum (iv) the acceleration of ball and (v) the magnitude of force applied. [4]

- Q8.** (a) Give reason. [3]  
(i) An athlete often runs before taking a long jump.  
(ii) In vacuum the stone and a feather fall together in at the same time.
- (b) (i) Derive the relationship between 'g' & 'G'. [2]  
(ii) Write the value of gravitational constant with its S.I. Unit. [1]
- (c) A stone is dropped freely from a certain height. It takes 5 sec. to touch the ground. Calculate—  
(i) the height from which the stone is dropped.  
(ii) the distance covered by the body in 2 sec. [4]

- Q9.** (a) (i) Name the type of non-contact force which is always attractive by nature. [3]  
(ii) Write any two general characteristics of non-contact force.
- (b) Two equal and opposite forces are on a moving object. How is its motion affected ? Give reason. [3]
- (c) Name and state the action and reaction — [2]  
(i) firing a bullet from a gun.  
(ii) a moving rocket.

Why does a glass vessel break when it falls on a hard floor, but it does not break when it falls on a carpet ?

- Q10.** (a) Water pipes in colder countries often burst in winter name the reason and explain it. [3]  
(b) (i) What do you mean by degradation of energy ? [3]  
(ii) Write any two advantages of using the nuclear energy.
- (c) What will be the effect of global warming — [2+2=4]  
(i) at the poles.  
(ii) in the coastal regions.