

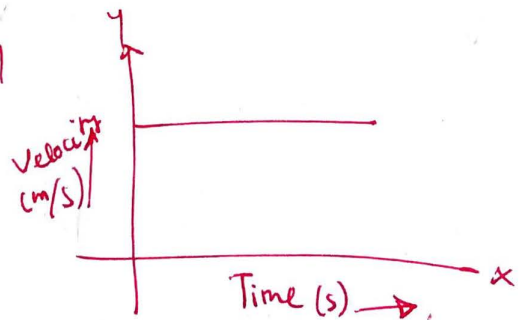
"All the best"

Time: 1 hr
mark: 35 marks

Part-A - 1 mark

1m x 5Q = 5m

- ① An object has moved through some distance. Can its displacement be zero?
- ② Why a fully loaded boat on sea is to be partly unloaded for safety before entering a river of fresh water?
- ③ Two cars travel from the bottom to top, one car travels in a twisty form. Which car has more p.E at the top?
- ④ A man with a mass of 80 kg falls 10m. How much mechanical energy does he gain or lose?
- ⑤ The v-t graph is given what would be the acceleration of the body



Part-B (2 marks x 3Q = 6m)

- ⑥ A wooden sphere of radius 1 cm sinks in water on coating with a layer of wax with thickness of 3 mm. It just floats. What is the density of the wood? Density of wax is 0.8 g/cm^3 .
- ⑦ A 20g of bullet is shot from a 5kg gun with velocity of 400 m/s. What is the recoil speed of the gun?

8) why does iron ship float on water
part-c (3mark x 3Q = 9m)

9) (i) what is meant by pressure? How it is related to thrust?
(ii) state pascal's law?

10) State Archimedes's principle. Describe an Experiment for its verification?

11) (i) How does sound produced by a source reach the listener

(ii) what is the wavelength of 5×10^4 Hz sound wave pulse emitted by a bat

part-d (5mark x 3Q = 15marks)

12) State the law of conservation of momentum. How do you obtain this law from Newton's third law

13) what is gravitational potential energy? obtain an expression for it in case of a body of mass m and at a height " h " above the Earth's surface.

14) Use velocity-time graph and derive ^{the} relation for
(i) $v^2 - u^2 = 2as$
(ii) $v = u + at$