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Date: 16-07-2021

Class: 9th Genesis

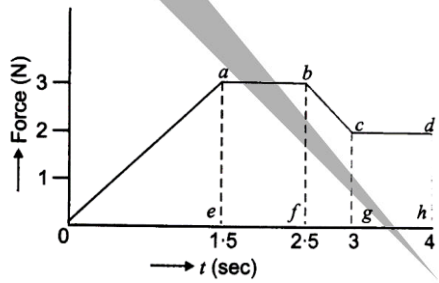
Subject: Science

Test code: SECT02(21021309)

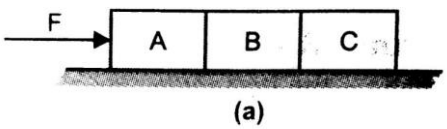
Physics

M. Marks: 20

1. Can a body in linear motion be in equilibrium? (1 marks)
2. The forces of action and reaction are equal and opposite. But they do not cancel each other. Why? (1 marks)
3. When a bullet is fired from a gun, what is the total momentum of gun and bullet. Explain Why. (1 marks)
4. While extinguishing fire, a fire man has to hold the hose pipe very strongly. Why? (1 marks)
5. A thief jumps from the upper storey of a house with a load on his back. What is the force of the load on his back, when thief is in air? (2 marks)
6. Derive second equation of motion. (2 marks)
7. Air is thrown on a sail attached to a boat from an electric fan placed on the boat. Will the boat start moving? (2 marks)
8. The initial speed of a body of mass 2 kg is 5 ms^{-1}. A force acts for 4 seconds in the direction of motion of the body. The force time graph is shown in Fig. Calculate impulse of the force and also find the speed of the body. (2 marks)



9. A stone of mass 500 g is thrown with a velocity of 20 ms^{-1} across the frozen surface of a lake. It comes to rest after travelling a distance of 0.1 km. Calculate force of friction between the stone and frozen surface of lake. (2 marks)
10. A force of 2 N gives a mass m_1 an acceleration of 5 m/s^2 and a mass m_2 and acceleration of 7 m/s^2. What acceleration would be produced if both the masses are tried together? (2 marks)
11. Three identical blocks, each having a mass M, are pushed by a force F on a frictionless table as shown in Fig. What is the acceleration of the blocks? What is net force on block A? What force does A apply on B? What force does B apply on C? Show action reaction pairs on the contact surfaces of the blocks. (4 marks)



(a)

Chemistry *M. Marks: 20*

1. (a) Which of the two will scatter light: soap solution or sugar solution? Why? (2 marks)
   (b) State whether colloidal solutions are homogenous or heterogeneous.
2. State one instance where water undergoes a physical change and one in which it undergoes a chemical change. (2 marks)
3. State whether the following statements are true or false: (2 marks)
   (a) Bread is an example of solid foam.
   (b) Sponge is an example of solid sol.
4. (a) What are the two ways in which the physical states of matter can be changed? (3 marks)
   (b) Draw the 'states of matter triangle' to show the interconversion of states of matter.
   (c) How can the evaporation of a liquid be made faster?
5. Explain why, air is considered a mixture and not a compound. (3 marks)
6. Classify the following into solutions, suspensions and colloids: (3 marks)
   Soda – water, Milk, Brine, Blood, Ink, Smoke in air, Chalk water mixture, Milk of Magnesia, Shaving cream, Muddy river water.
7. (a) The 'sea water' can be classified as a homogenous mixture as well as a heterogeneous mixture? Comment. (5 marks)
   (b) Which of the following do not exhibit Tyndall effect?
   Starch solution, Sugar solution, Ink, Salt solution, Copper sulphate solution, Ammonium chloride solution, Fog, Smoke, Car exhausts.
   (c) A colloid is a …..mixture and its components can be separated by technique known as …….

Biology *M. Marks: 20*

1. How water hyacinth floats in water. (1 marks)
2. Functions guard cells. (1 marks)
3. What is grit in peat. (1 marks)
4. Human skin is made up of which cells. (1 marks)
5. Which thickenings are present in cork. (1 marks)
6. Food is transported by phloem in which form. (1 marks)
7. Give functions of epidermis in plants. (3 marks)
8. Draw labelled diagram of bone and cartilage. (3 marks)
9. Name various types of WBC and give one function each. (3 marks)
10. Give five differences between Xylem & Phloem. (5 marks)