

T1-Physics  
Model Question Paper III  
9th Standard

**Science**

Reg.No. : 

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**I. Answer all the questions**

Time : 01:30:00 Hrs

Total Marks : 55

5 x 1 = 5

**Part-A**

- 1)  $5 \times 10^7 \mu\text{s}$  is equivalent to \_\_\_\_\_.  
(a) 0.5 s (b) 5 s (c) 50 s (d) 500 s
- 2) Arrange the following speed in the ascending order.  
(a) 7 m/s (b) 15 km/h (c) 2km/minute (d) 0.1 m/millisecond
- 3) The gradient or slope of the distance-time graph at any point gives \_\_\_\_\_.  
(a) acceleration (b) displacement (c) velocity (d) time
- 4) Every liquid exerts an upward force on the objects immersed in it. The upward force is called  
(a) Gravitational force (b) Buoyant force (c) Mechanical force (d) Magnetic force
- 5) Buoyant force acting on an object is equal to the \_\_\_\_\_.  
(a) mass of the solid (b) weight of the solid (c) weight of the liquid displaced by the object (d) mass of the liquid displaced by the object

**Part-B**

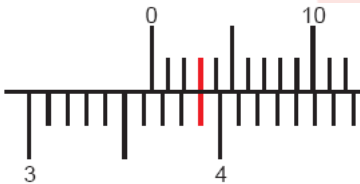
5 x 1 = 5

- 6) What is the least count of your wrist watch? Is it same for all kinds of watches?
- 7) The wavelength of monochromatic light is  $6000 \text{ \AA}$ . Write this value in nm
- 8) Give an example of a motion in which the displacement is zero, but the distance travelled is not zero.
- 9) What determines the direction of motion of an object - velocity or acceleration?
- 10) What is the nature of the displacement time graph of a body moving with constant acceleration?

**Part-C**

15 x 2 = 30

- 11) In a Vernier caliper, the difference between 1 MSD and 1 VSD is found to be 0.1 mm. What does it represent?
- 12) What is the need of measurement? Explain
- 13) Read the main scale and the vernier scale of the Vernier caliper shown in the figure given below. What is the length recorded by this caliper?



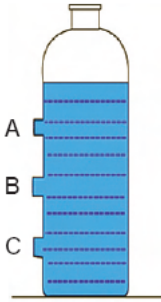
- 14) A student writes the length of an object measured from a metre ruler as 4.20 cm. Is he justified in writing this value? Explain.
- 15) Name any two units of length which are bigger than the metre. Write the relation between each of those units and the metre.
- 16) A bus travels a distance of 20 km from Chennai Central to Airport in 45 minutes.
  - i) What is the average speed?
  - ii) Why does the actual speed differ from the average speed?
- 17) A car moving along a straight line covers a distance of 1km towards the east in 100 s. Find (i) the speed of the car. (ii) the velocity of the car.
- 18) The speed of a particle is constant. Will it have an acceleration? Justify with an example
- 19) Mention the uses of velocity-time graphs.
- 20) A car starting from rest acquires a velocity of 180 m/s in 0.05 h. Find its acceleration.
- 21) State the Archimedes' principle
- 22) Describe an experiment to verify the Archimedes' Principle.
- 23) Why is the storage water tank of a building kept on the roof top?
- 24) Why is it easier to lift a stone under water, than in air? Explain.
- 25) 1 kg of iron and 1 kg of cotton are allowed to fall from the roof top of a building simultaneously. Which one do you think will reach the ground first. Justify your answer

**Part-D**

5 x 3 = 15

- 26) i) Define the least count of an instrument.
  - ii) Explain the types of Zero error of the Vernier caliper.
  - iii) Write the steps involved in measuring any dimension of a given object using a Vernier caliper.
- 27) Derive the three equations of motion by graphical method.
- 28) Analyze the diagram and answer the following:
  - i) What is the apparent loss in weight of the block inside the water?
  - ii) What do you infer from the diagram?

- 29) A weather forecasting balloon of volume  $15\text{m}^3$  contains hydrogen of density  $0.09\text{kgm}^{-3}$ . The volume of equipment carried by the balloon is negligible compared to its own volume. The mass of the empty balloon is  $7.15\text{kg}$ . The balloon is floating in the air of density  $1.3\text{kgm}^{-3}$ .
- Calculate the mass of hydrogen in the balloon.
  - Calculate the mass of air displaced by the balloon.
  - Calculate the mass of the equipment.
- 30) Water is kept in a cylindrical container having three holes 'A', 'B' and 'C' as shown in the given diagram.
- Copy the diagram and show the flow of water from each hole.
  - From which hole will water flow to the longest distance and why?



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