

**8<sup>th</sup> ICSE (Science) Term – 1 Physics (2024 – 25)****Time Allowed : 2 Hours****Maximum Marks : 80****SECTION-A****1. Fill in the blanks**

- (i) The mathematic expression of Newton's second law of motion is .....
- (ii) Smaller the least count of an instrument, more precise is the ..... made by using it.
- (iii) The motion of a train on a straight track is an example of ..... motion.
- (iv) .....error arises due to wear and tear of threads of screw.
- (v) Action and reaction act on the different bodies in .....directions.

**2. Write True or False for each statement:**

- (i) The force due to gravity is non-contact force.
- (ii) Motion of a car in a crowded street is an example of uniform acceleration.
- (iii) The unit of time period is Hertz (Hz).
- (iv) The diameter of a thin wire can be measured by a screw-guage.
- (v) Weight is a scaler quantity.

**3. Define the following terms:**

- (i) Normal Reaction force
- (ii) Inertia
- (iii) Displacement
- (iv) Linear momentum
- (v) Variable Velocity
- (vi) Zero Error in vier callipers

**4. Differentiate between the following:**

- (i) unifrom acceleration and variable Acceleration
- (ii) Fundamental units and Derived units
- (iii) Contact force and Non contact force
- (iv) Scalar quantities and vector quantities
- (v) Inertia of rest and Inertia of motion
- (vi) Mass and weight

**5. Give the S.I. unit of:**

- (i) Linear Momentum
- (ii) Force
- (iii) Retardation
- (iv) Weight
- (v) Speed
- (vi) Frequency

**6. Give reasons for the following**

- (i) Why it is advantageous to run before taking a long jump?
- (ii) When glass vessels fall on a hard floor, they break, but they do not break when they fail on carpet or sand. Explain.
- (iii) When a shot is fired from a gun, the gun gets recoiled. Explain.
- (iv) When you step ashore from a stationary boat, is tends to leave the shore. Explain
- (v) When a passenger jumps out of a moving train, he falls down. Explain.

**7. Answer the following questions:**

- (i) State Newton's second law of motion, Under w at condition does it take the form,  $F=ma$ ?
- (ii) What are the main effects produced by a force applied on a body?
- (iii) (a) Write an expression for the time period of a simple pendulum.
- (b) What is the relationship between time period and frequency?
- (iv) Define acceleration on due to gravity. Also write average value of acceleration due to gravity (g).
- (v) Give two examples to show that greater the mass or the body, greater is the inertia of body.
- (vi) What is C.G.S unit of force? Write relation between S.I and C.G.S units of force

**8. Numericals:**

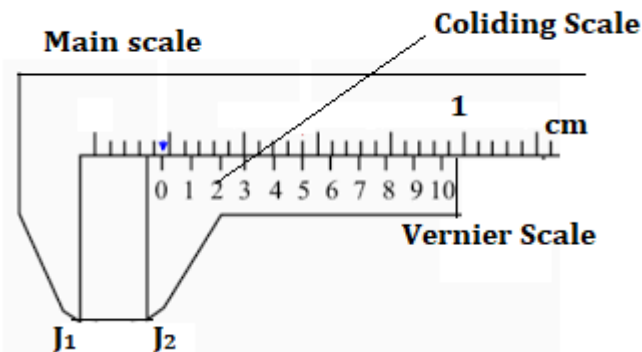
- (i) A simple pendulum completes 50 oscillations i one minute. Find its.
  - (a) Frequency
  - (b) Time period
- (ii) A car moving on straight path covers a distance of 2km due east in 4 minutes. What is
  - (a) speed
  - (b) velocity of car
- (iii) When brakes are applied to bus, the retardation. produced is  $30 \text{ cm/s}^2$  and bus takes 30 seconds to

stop. Calculate

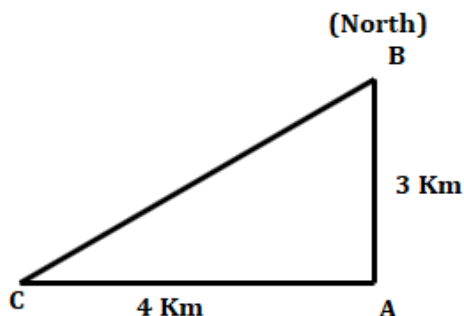
- (a) The initial velocity of the bus                      (b) The distance travelled by bus during this time.
- (iv) A train is moving with a velocity of 90km/h. It is brought to stop by applying the brakes which produces a retardation of  $1\text{m/s}^2$ . Find:
  - (a) The velocity after 20 seconds and                      (b) The time taken by the train to come to rest
- (v) (a) A car starting from rest acquires a velocity 250 m/s in 0.1 hour. Find the acceleration (b) Express each of the following in m/s. (i) 72 km/h                      (ii) 90km/min.

**9. Diagram based questions:**

- (i) Calculate negative Zero error, from the adjacent diagram of vernier callipers.
- (ii) Write the number of divisions on vernier scale.



- (iii) A boy travels 4 km towards East and then 3 km due North as shown in the diagram below. Now find (a) The total distance travelled (b) Displacement



(iv)

Diagram showing a book on a table. An arrow labeled 'Push' points to the right. The word 'Book' is written below the book. An arrow points to the book with the text 'Name of the force?'.

A graph with 'Acceleration (a)' on the vertical axis and 'Force (F)' on the horizontal axis. A straight line starts from the origin and goes upwards and to the right. The text 'mass covered' is written near the line.

- (a) Name the force?                      (b) Write the conclusion of the graph Shown above.