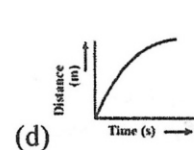
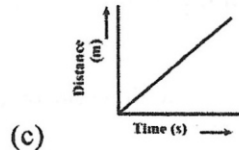
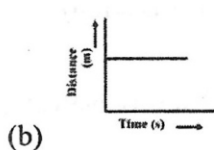
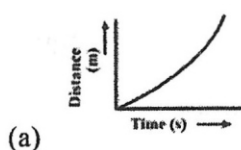


**St. Mary's Convent Inter College, Prayagraj****First Terminal Examination 2025-26****Subject – Physics (Science Paper – 1)****Time : 2hrs.****Class- 9****M.M. :80****Name :****Roll No.****Date :***Answers to this Paper must be written on the paper provided separately.**You will not be allowed to write during first 15 minutes.**This time is to be spent in reading the question paper.**The time given at the head of this Paper is the time allowed for writing the answers.***Section A is compulsory. Attempt any four questions from Section B.**

The intended marks for questions or parts of questions are given in brackets [].

SECTION A [40]*(Attempt all questions from this Section.)***Choose the correct answers to the questions from the given options.****(Do not copy the questions, write the correct answers only)****Question 1****[15]**

- (i) The fundamental unit is-
(a) newton (b) pascal (c) hertz (d) Kelvin
- (ii) With reference to a Vernier Calliper, Least count (l.c.) is the
(a) Difference between number of divisions on vernier and the zero error.
(b) Difference between Main Scale Division (m.s.d.) and Vernier Scale Division (v.s.d.).
(c) Reading on the vernier at two different moments.
(d) None of these.
- (iii) Magnetic field lines are:
(a) Closed continuous curves. (b) Continuous curves but not closed.
(c) Neither closed curves nor continuous curves. (d) Generated by static charges.
- (iv) 1 calorie equals:
(a) 4.186 kJ (b) 4.2 mJ (c) 4.186 J (d) 0.42 J
- (v) If the force acting on the body is zero, its momentum is :
(a) zero (b) constant (c) infinite (d) none of these
- (vi) If A and B are two objects with masses 50g and 20g respectively, then:
(a) A has more inertia than B. (b) B has more inertia than A.
(c) A and B have the same inertia. (d) None of the two has inertia.
- (vii) The distance-time graph for a uniformly accelerated motion is:
(a) Straight line (inclined) (b) Parabola
(c) Straight line (parallel to the x-axis) (d) Not possible to draw this graph.
- (viii) The temperature of a body depends on the average _____ of the molecules .
(a) potential energy (b) kinetic energy (c) elastic energy (d) atomic energy
- (ix) The correct relation between wavelength, wave velocity and frequency is –
(a) $V = f\lambda$ (b) $V = f\lambda$ (c) $fV = \lambda$ (d) $\lambda V = f$
- (x) Which of the following graphs shown below represents the uniform motion of an object?



(xi) For a body moving with uniform velocity, the equation of motion takes the form –

- (a) $v = u$ (b) $S = \frac{1}{2}at^2$ (c) $S = ut$ (d) Both (a) and (c)
- (xii) The term “supersonic” refers to:
(a) Frequencies above 20,000 Hz.
(b) Frequencies below 20 Hz.
(c) Speed exceeding the speed of light in a medium.
(d) Speed exceeding the speed of sound in a given medium.



- (xiii) Flow of energy in food chain is:
(a) Linear, from plants to carnivores. (b) Cyclic.
(c) Linear from carnivores to plants. (d) Amplified at each subsequent stage.
- (xiv) Which of the following quality in sound motion is independent of the other three?
(a) Speed (b) Frequency (c) Wavelength (d) Amplitude
- (xv) Assertion (A): All matter, solid, liquid and gas, generally expand on heating.
Reason (R): The particles gain kinetic energy on heating, and start moving around.
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true and R is not the correct explanation of A.
(c) Assertion is false but reason is true.
(d) Assertion is true but reason is false.

Question 2

[10]

- (i) Complete the following by choosing the correct answer from the bracket:

[6]

- (a) The physical quantity representing both magnitude and direction is called _____ (scalar quantity/vector quantity).
(b) The area under the velocity-time graph gives the _____ (distance moved/acceleration) for all types of motion.
(c) Increase in _____ (temperature, density, pressure) leads to decrease in speed of sound in gas.
(d) Nuclear fusion produces _____ (more/less) energy than nuclear fission of unit mass of the fuel.
(e) If the length of the pendulum decreases, it will oscillate _____ (faster/slower) than the previous rate.
(f) The magnetic force is _____ (maximum/zero/minimum) at neutral points.
- (ii) Write the S I units of the following physical quantities. How are they related to the fundamental units?
a) Force b) Frequency
- iii) The velocity of an object increases at a constant rate from 20m/s to 50m/s in 10 seconds. Find the acceleration.

[2]

[2]

Question 3

[15]

- (i) What do you understand by free fall?
- (ii) Draw a velocity-time graph for a body moving with-
(a) uniform velocity (b) uniform acceleration
- (iii) What is the value of the density of water at 4°C in CGS and SI units?
- (iv) What is contact force? Give two examples.
- (v) A source of wave produces 40 crests and 40 troughs in 0.4s. What is the frequency of the wave?
- (vi) Find the weight of an object of mass 10kg in SI unit of force.
- (vii) a. What is Newton's formula for the velocity of sound in a gas?
b. Name the physical quantity which causes motion in a body.
c. Name the two kinds of waves in the form of which sound travels in a medium.

[2]

[2]

[2]

[2]

[2]

[2]

[3]

SECTION B (40)

(Attempt any four questions from this question)

Question 4

[10]

- (i) Give an example of motion of a body with a constant speed, but with a variable velocity. Draw a diagram to represent such a motion.
- (ii) Draw a graph to show the variation in volume of water with temperature in the temperature range from 0°C to 10°C.
- (iii) a. What do you mean by green house effect?
b. State two advantages of using nuclear energy for producing electricity.

[3]

[3]

[2]

[2]

Question 5

[10]

- (i) How do the following factors affect, if at all, the speed of sound in air

(a) frequency of sound

(b) temperature of air

(c) pressure of air

[3]

- (ii) A boy fires a gun and another boy at a distance hears the sound of fire 2.5 s after seeing the flash. If speed of sound in air is 340 m s^{-1} , find the distance between the boys. [3]

- (iii) a. Can you hear the sound produced due to vibrations of a seconds' pendulum? Give reason. [2]
b. What is a longitudinal wave? In which medium: solid, liquid or gas, can it be produced? [2]

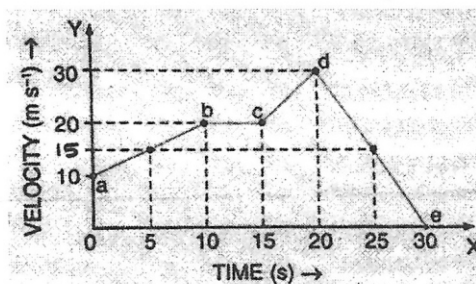
Question 6 [10]

- (i) Name and define the physical quantity represented by the symbol 'g'? How it is related to universal gravitational constant 'G'? [3]
(ii) A ball is thrown vertically upwards. It goes to a height 20 m and then returns to the ground. Taking 'g' to be 10 m s^{-2} find — [3]
a. the initial velocity of the ball
b. the final velocity of the ball on reaching the ground and
c. the total time of journey of the ball.
(iii) a. State Newton's second law of motion. Under what condition does it take the form $F = ma$? [4]
b. A boat moves backwards when a man steps out of it. Give reason for this observation.
c. A force of 15 N acts on a body of mass 2 kg. Calculate the acceleration produced. [4]

Question 7 [10]

- (i) A velocity-time graph of a moving body is shown below. [3]

- 1) find the retardation of the body
- 2) find the time interval with zero acceleration
- 3) compare the acceleration between the time intervals 0 to 5s and 15 to 20s



- ii) A body moving with uniform acceleration travels 84m in first 6s and 180m in the next 5s. Find the initial velocity and acceleration of the body. [3]
iii) Derive the three equations of motion by graphical method. [4]

Question 8 [10]

- (i) State three properties of magnetic field lines. [3]
(ii) What is meant by electromagnet? Name the material used for preparing an electromagnet. [3]
State two ways through which the strength of an electromagnet can be increased? [3]
(iii) a. State two evidences of the existence of earth's magnetic field [4]
b. Can two magnetic field lines intersect each other? Give reason for your answer. [4]

Question 9 [10]

- (i) Name the instrument to measure the following: [3]
1) thickness of paper.
2) diameter of a needle.
If the thickness of a paper is less than the least count of Vernier Calipers, how will you use it to measure the thickness?

- (ii) The diagram below shows displacement time graph of a sound wave travelling at a speed of 20 m/s. [3]

- 1) Calculate the frequency and wavelength of the wave.

- (iii) Write four differences between mass and weight. [4]

