

# PROFESSORS ACADEMY TIBBA SULTANPUR

PARAGON SCHOOL WARD NUMBER 3 BEHIND GOVT HIGHER SECONDARY SCHOOL (BOYS) TIBBA SULTANPUR



Student Name _____	Roll Number _____	Class Name _____	Paper Code _____
		INTER-I	7672
Subject Name _____	Time Allowed _____	Total Marks _____	Exam Date _____
Physics		19	05-Feb-2026

Q1. Choose the correct answer.

(1 x 19 = 19)

- If an observer is moving in the same direction as a sound wave, the velocity of the wave seems to be:  
 (A) More      (B) Less      (C) Constant      (D) Sum of the two velocities
- A photon is a particle of light. What is its mass when it moves with 0.9 c?  
 (A)  $9.1 \times 10^{-31}$  kg      (B)  $1.67 \times 10^{-19}$  kg      (C)  $1.67 \times 10^{-27}$  kg      (D) Zero
- Relative motion is defined as the motion of one object:  
 (A) W.r.t the ground      (B) W.r.t time      (C) W.r.t one another      (D) W.r.t itself
- If two bodies move with equal speed in the same direction, the relative speed is:  
 (A) Equal to their individual speed      (B) Zero      (C) The sum of their speeds      (D) Infinity
- In relative motion, if object A is stationary and object B is moving, the velocity of B relative to A is:  
 (A) Equal to velocity of B      (B) Zero      (C) Equal to velocity of A      (D) Negative of velocity of A
- Relative velocity between two bodies moving in opposite directions is:  
 (A) Sum of their velocities      (B) Product of their velocities      (C) Difference of their velocities      (D) Zero
- When the relative motion of two objects is zero, it means:  
 (A) They are moving at the same speed      (B) They are at rest      (C) They are moving towards each other      (D) They are moving with equal velocities in the same direction
- The coordinate system in which law of inertia is valid is called:  
 (A) Special frame of reference      (B) Inertial frame of reference      (C) Non-inertial frame of reference      (D) Standard frame of reference
- An inertial frame of reference is one in which:  
 (A) Newton's laws of motion are not valid      (B) Newton's first law is valid      (C) Objects always accelerate      (D) The speed of light is variable
- A frame of reference that is accelerating w.r.t. an inertial frame is called:  
 (A) Inertial      (B) Stationary      (C) Non-inertial      (D) Rotational
- Which of the following is a non-inertial frame of reference?  
 (A) A train moving at constant speed on a straight track      (B) A stationary table  
 (C) A car accelerating forward      (D) A spaceship drifting in deep space with no forces acting
- A freely falling elevator is an example of:  
 (A) Inertial frame      (B) Non-inertial frame      (C) Rotational frame      (D) Stationary frame
- Which of the following is true for an inertial frame?  
 (A) It must be at rest      (B) It must rotate      (C) It must be accelerating      (D) It must move with constant velocity
- A rotating merry-go-round is an example of:  
 (A) Inertial frame      (B) Static frame      (C) Non-inertial frame      (D) Geostationary frame

15. In a non-inertial frame, what kind of force must be introduced to apply Newton's laws correctly?  
(A) Gravitational force      (B) Frictional force      (C) Fictitious force      (D) Magnetic force

16. The Earth is considered an inertial frame for most purposes because:  
(A) It is at absolute rest      (B) It does not rotate  
(C) Newton's laws do not work on Earth      (D) Its acceleration is negligible compared to objects on its surface

17. A ball dropped inside a moving train (with constant velocity) will fall:  
(A) Straight down relative to the train      (B) Backward down relative to the train      (C) Forward down relative to the train      (D) Sideways down relative to the train

18. If the rest mass of a particle  $m_0$  increases to  $m$  due to its high speed, then its kinetic energy is:  
(A)  $1/2 mc^2$       (B)  $1/2 mv^2$       (C)  $(m - m_0) c^2$       (D)  $1/2 (m - m_0) c^2$

19. The speed of beam light of a car while moving with high speed as compared to its rest position is:  
(A) Greater      (B) Less      (C) Same      (D) Zero



### Multiple Choice Correct Answers

1	(B)	2	(D)	3	(C)	4	(B)	5	(A)	6	(C)	7	(D)	8	(B)	9	(B)	10	(C)
11	(C)	12	(B)	13	(D)	14	(C)	15	(C)	16	(D)	17	(A)	18	(C)	19	(C)		

