



Junior Physics Olympiad (JPO)

Sample Question Paper – Class VIII

1. A student walks 3 km east and then 4 km north.

The magnitude of the resultant displacement is

- A) 5 km
- B) 7 km
- C) 1 km
- D) 12 km

2. Two vectors have magnitudes 5 N and 5 N.

Which of the following **cannot** be their resultant?

- A) 0 N
- B) 5 N
- C) 10 N
- D) 15 N

3. A force of 12 N east and another force of 5 N west act on an object.

The resultant force is

- A) 17 N east
- B) 7 N east
- C) 7 N west
- D) 12 N west

4. A hockey puck slides on a smooth ice surface after being hit.

Ignoring friction, it will continue moving because of

- A) inertia
- B) gravity
- C) pressure
- D) momentum loss

5. A cricket ball and a tennis ball are dropped together in vacuum.

Which reaches the ground first?

- A) Cricket ball
- B) Tennis ball
- C) Both together
- D) Cannot be predicted

6. A truck and a bicycle move with the same speed.

Which has greater momentum?

- A) Bicycle
- B) Truck
- C) Both have equal momentum
- D) Cannot be determined

7. Which situation demonstrates the conservation of momentum?

- A) A moving fan slowing down
- B) Two skaters pushing each other apart
- C) A ball falling freely
- D) Water boiling in a vessel

8. Impulse is equal to

- A) Force $\times$ Distance
- B) Force $\times$ Time
- C) Mass $\times$ Velocity
- D) Pressure $\times$ Area

9. Which type of friction is generally the smallest?

- A) Static friction
- B) Sliding friction
- C) Rolling friction
- D) Fluid friction

10. Which statement about friction is correct?

- A) Friction is always harmful.
- B) Friction always acts in the direction of motion.
- C) Friction opposes relative motion between surfaces.
- D) Smooth surfaces have greater friction.

11. A person climbs a staircase carrying a heavy bag.

The work done against gravity depends mainly on

- A) Height climbed
- B) Colour of the staircase
- C) Shape of the bag
- D) Time taken

12. Which form of energy is maximum at the highest point of a swinging pendulum?

- A) Kinetic energy
- B) Potential energy
- C) Heat energy
- D) Sound energy

13. A hydroelectric power station mainly converts

- A) Electrical → Mechanical
- B) Mechanical → Electrical
- C) Heat → Sound
- D) Light → Electrical

14. A wooden block floats in water because

- A) Its weight is zero.
- B) Upthrust balances its weight.
- C) Water has no pressure.
- D) Gravity does not act on it.

15. Why does a diver feel greater pressure at greater depths?

- A) Water becomes heavier.
- B) Water pressure increases with depth.
- C) Gravity becomes stronger.
- D) Water becomes colder.

16. Which statement about sound is correct?

- A) Loudness depends only on frequency.
- B) Pitch depends mainly on frequency.
- C) Frequency depends on amplitude.
- D) Amplitude determines speed of sound.

17. Two waves have frequencies of 200 Hz and 400 Hz.

The second wave has

- A) Lower pitch
- B) Higher pitch
- C) Greater loudness
- D) Lower speed

18. Three identical bulbs are connected as shown.

- Bulb P alone in one circuit.
- Bulbs Q and R connected in series in another identical circuit.

Which bulb glows brightest?

- A) P B) Q
- C) R
- D) Q and R equally brighter than P

19. Which household appliance mainly works because of the heating effect of electric current?

- A) Electric fan
- B) Mixer grinder
- C) Electric iron
- D) Loudspeaker

20. A student says,

"Energy is lost when a ball bounces."

The best scientific explanation is

- A) Energy disappears.
- B) Mechanical energy is converted into heat and sound.
- C) Gravity absorbs energy.
- D) The ball destroys energy.