Science: Force

1. **A boy pushes a heavy cupboard with a force of 200 N, but the cupboard does not move. Which statement is correct?**

   (A) No force acts on the cupboard.

   (B) The net force on the cupboard is zero.

   (C) Gravity has stopped acting.

   (D) The boy has done mechanical work.

2. **A football is kicked toward the east. A strong wind blows toward the west. Which force changes the speed of the ball after it is kicked?**

   (A) Only gravity

   (B) Only wind resistance

   (C) The combined effect of all forces

   (D) No force

3. **A spacecraft is travelling in deep space where almost no forces act on it. What will happen?**

   (A) It gradually stops.

   (B) It speeds up automatically.

   (C) It continues moving with constant speed.

   (D) It falls toward Earth.

4. **Why do goalkeepers wear gloves with rough surfaces?**

   (A) To reduce weight

   (B) To increase friction

   (C) To increase gravity

   (D) To reduce air resistance

5. **A truck and a bicycle collide. Which statement is true?**

   (A) The truck exerts a larger force.

   (B) The bicycle exerts a larger force.

   (C) Both exert equal forces on each other.

   (D) No force acts during collision.

6. **A ball is thrown vertically upward. At its highest point,**

(A) gravity becomes zero.

(B) velocity becomes zero but gravity still acts.

(C) both velocity and gravity become zero.

(D) the ball has no forces acting.

7. Two students pull a rope. Student A pulls with 250 N east. Student B pulls with 250 N west. Which statement is correct?

(A) Rope moves east.

(B) Rope moves west.

(C) Net force is zero.

(D) Each force disappears.

8. A coin is placed on a card resting over a glass. The card is pulled away quickly, and the coin falls into the glass. Why?

(A) The coin is attracted by the glass.

(B) The coin tries to remain at rest due to inertia.

(C) The card pushes the coin downward.

(D) Gravity suddenly becomes stronger.

9. Which situation involves balanced forces?

(A) A bicycle speeding up.

(B) A car taking a turn.

(C) A book resting on a table.

(D) A falling coconut.

10. Which of the following is NOT a contact force?

(A) Friction

(B) Muscular force

(C) Magnetic force

(D) Tension in a rope

11. A box is pushed with 40 N to the right. Friction acts with 25 N to the left. What is the net force?

(A) 15 N to the right

(B) 65 N to the right

(C) 15 N to the left

(D) Zero

12. Two identical balls are dropped simultaneously. One falls in air. The other falls inside a vacuum tube. Which reaches the ground first?

(A) The ball in air

(B) The ball in vacuum

(C) Both reach together

(D) Cannot be determined

13. A wooden block is resting on a rough table. The applied force is increased gradually. The block starts moving only after the force reaches 18 N. Which statement is correct?

(A) Friction was always exactly 18 N.

(B) Static friction increased until it reached a maximum of 18 N.

(C) Friction suddenly appeared only at 18 N.

(D) Friction became zero before the block moved.

14. A box is pushed with 30 N toward the east. Another student pushes the same box with 20 N toward the west. Friction is 5 N toward the west. What is the net force on the box?

(A) 5 N east

(B) 10 N east

(C) 15 N east

(D) 55 N east

15. A heavy suitcase is difficult to move at first, but once it starts moving, it becomes easier to push. Why?

(A) Gravity decreases.

(B) Air resistance disappears.

(C) Maximum static friction is greater than kinetic friction.

(D) The suitcase becomes lighter.

16. A ball is thrown upward. Which force acts on it after it leaves the hand but before it reaches the highest point (ignoring air resistance)?

(A) Upward force only

(B) Downward force only

(C) Upward and downward forces

(D) No force

17. Four students pull a cart.

Student A → 30 N East

Student B → 20 N West

Student C → 15 N East

Student D → 5 N West

Ignoring friction, the net force is

(A) 10 N East

(B) 20 N East

(C) 30 N East

(D) Zero

18. Which surface would produce the greatest friction for a rubber tyre?

(A) Wet ice

(B) Smooth marble

(C) Dry rough road

(D) Glass

19. An astronaut carries a toolbox on Earth and then on the Moon.

Which statement is correct?

(A) Both weight and mass decrease.

(B) Mass remains the same, but weight decreases.

(C) Weight remains the same, but mass decreases.

(D) Both remain unchanged.

20. A wooden block is pulled with a horizontal force of 40 N. The friction acting on the block is 40 N. Which statement is correct?

(A) The block must move with constant speed.

(B) The block may remain at rest.

(C) The block accelerates.

(D) The friction force disappears.