CBSE

FORCE AND LAWS OF MOTIONS WS 1

Class 09 - Science

Section A

1. The minimum number of unequal forces that can make zero resultant is **[1]**

   a) ten
   b) four
   c) three
   d) two

2. Which of the following statement is not correct for an object moving along a straight path in an accelerated motion? **[1]**

   a) Its velocity always changes
   b) A force is always acting on it
   c) It speed keeps changing
   d) It always goes away from the earth

3. A ball is rolling down a slope at a steady speed. Which of the following statements is correct? **[1]**

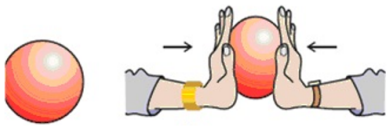
   a) There is an unbalanced force downwards.
   b) The forces acting on the ball are balanced.
   c) There are no forces acting on the ball.
   d) Frictional force is greater than the forward force.

4. **Assertion (A):** If the resultant of all the forces acting on a body is zero, then the forces are called balanced forces. **[1]**

   Reason (R): The forces acting on a stationary box is an example of balanced forces.

   a) Both A and R are true and R is the correct explanation of A.
   b) Both A and R are true but R is not the correct explanation of A.
   c) A is true but R is false.
   d) A is false but R is true.

5. When we press a rubber ball with both the hands, it **[1]**



   a) becomes light
   b) changes its Mass
   c) changes composition
   d) changes its shape

6. Match the following with the correct response**:** **[1]**

(a) Unbalanced force	(i) Applying grease
(b) Remains unchanged	(ii) Change in state
(c) Method of reducing friction	(iii) Force
(d) Rate of change of momentum	(iv) Inertia

   a) (a) - (i), (b) - (iii), (c) - (ii), (d) - (iv)
   b) (a) - (ii), (b) - (iv), (c) - (i), (d) - (iii)

c) (a) - (iii), (b) - (ii), (c) - (iv), (d) - (i)

d) (a) - (iv), (b) - (i), (c) - (iii), (d) - (ii)

7. Match the following with the correct response. **[1]**

(1) Action and reaction	(A) No acceleration
(2) Magnitude of force	(B) Newton's second law
(3) Momentum	(C) Act on different objects
(4) Resultant of balanced force	(D) Vector quantity

a) 1-C, 2-B, 3-D, 4-A

b) 1-B, 2-D, 3-A, 4-C

c) 1-A, 2-C, 3-B, 4-D

d) 1-D, 2-A, 3-C, 4-B

8. Balanced forces may _____ a body. **[1]**

a) Accelerated

b) Move

c) Retard

d) Deform

9. **Statement A:** Gravitational force is the weakest force in nature. **[1]**

Statement B: Electrostatic force is an example of non - contact forces.

Which of the above two statements is true?

a) Statement B is true

b) Neither statement A nor B is true

c) Both statements A and B are true.

d) Statement A is true

10. Which is correct about frictional force & gravitational force? **[1]**

A. Frictional force always produces retardation while gravitational force produces both retardation and acceleration

B. Both produce retardation

C. The frictional force acts when two surfaces are in contact

D. Gravitational force acts when the object is at some height

a) (A) and (B) are correct

b) (B) and (C) are correct

c) (A), (C) and (D) are correct

d) All of these

11. Identify the incorrect statement. **[1]**

A. The spring force always pushes a body.

B. The weight of a body always acts towards the centre of the Earth.

C. The tension of a string always pulls a body.

D. Frictional force always acts parallel to the surface of contact.

a) (C)

b) (D)

c) (B)

d) (A)

12. What do you mean by a resultant force? **[1]**

13. If the body is found to be accelerated, is the force acting on it balanced or unbalanced? **[1]**

14. What do balanced forces usually do to a body? **[1]**

Section B

15. Describe balanced forces with the help of two examples. **[2]**

16. An object experiences a net zero external unbalanced force. Is it possible for the object to be travelling with a **[2]**

non-zero velocity? If yes, state the conditions that must be placed on the magnitude and direction of the velocity. If no, provide a reason.

Section C

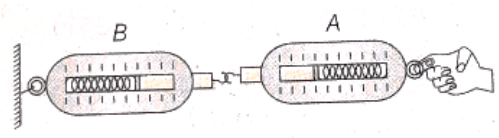
17. **State True or False:** **[3]**

(a) A force can move a stationary body. **[1]**

(b) The SI unit of work is kg ms^{-2}. **[1]**

(c) Balanced forces cannot change the state of rest or of uniform motion of a body. **[1]**

18. Look at the diagram below and answer the following questions: **[3]**



i. When a force is applied through the free end of the spring balance A, then the reading on the spring balance A is 15 g-wt. What will be the measure of the reading shown by spring balance B?

ii. Write the reasons for your answer.

iii. Name the force that balance A exerts on balance B and the force of balance B on balance A.

Section D

19. Define force? Explain five effects of force? **[5]**

20. Define balanced and unbalance forces. Why is acceleration of a body not possible under the action of balanced forces? **[5]**

Section E

21. **Fill in the blanks:** **[6]**

(a) If the resultant of all the forces acting on a body is not zero, then the forces are called _____ forces. **[1]**

(b) The two _____ forces are also known as action and reaction forces. **[1]**

(c) _____ forces can change the state of rest or of uniform motion of a body. **[1]**

(d) The symbol of unit of force is _____. **[1]**

(e) If the resultant of all the forces acting on a body is zero, then the forces are called _____ forces. **[1]**

(f) Force is a _____ quantity. **[1]**