X – SCIENCE – FIRST UNIT TEST QUESTION PAPER – 2024

TOTAL MARK : 35 M

CHOOSE THE CORRECT ANSWER (10 x 1 = 10 m)

1. …….. has both magnitude and direction.
a) Force b) mass c) distance d) Energy

2. Linear momentum is a …….. quantity.

a) scalar b) tensor c) vector d) All

3. Parallel equal forces are acting in opposite directions in the same line of action (F1 = F2) F_{net} is ..

a) 0 b) F1 + F2 c) F_{net} is directed along the greater force. d) none of the above

4. If the resultant force of all the forces acting on a body is equal to ……..

a) zero b) maximum c) minimum d) none of the above

5. The amount of force required for a body of mass 1 kg produces an ……..

a) velocity b) acceleration c) force d) momentum

6. Change in momentum can be achieved in …….. ways.

a) 1 b) 2 c) 3 d)

7. The value of acceleration due to gravity on the surface of the moon is……..m/s^2

a) 9.8 b) 1.625 c) both a and b d) zero

8. If a person whose mass is 60 kg stands on the surface of Earth, his weight would be …… N

a) 588 b) 5.88 b) 58.8 d) 5880

9. Calculate the velocity of a moving body of mass 5 kg whose linear momentum is 5 $kgms^{-1}$ ……

a) 1 ms^{-1} b) 0.5 ms^{-1} c) 2 ms^{-1} d) 0.25 ms^{-1}

10. When a person swims he pushes the water using the hands backwards (Action), and the water pushes the swimmer in the forward direction (Reaction)…….. Newtons law

a) First b) second c) Third d) All

Answer any FIVE questions (5 x 2 = 10 m)

11. Define Linear momentum

12. To calculate the mass of the earth

13. Write the examples of impulsive force

14. What is Equilibrant

15. Write the applications of Torque

16. How does an astronaut float in a space shuttle?

17. A ball of mass 1 kg moving with a speed of 20 m/s rebounds after a perfect elastic collision with the floor. Calculate the change in linear momentum of the ball.

Answer any THREE questions (3 x 5 = 15 m)

18. The ratio of masses of two planets is 2:3 and the ratio of their radii is 4:7 Find the ratio of their accelerations due to gravity

19. State and prove the law of conservation of linear momentum

20. A heavy truck and bike are moving with the same kinetic energy. If the mass of the truck is four times that of the bike, then calculate the ratio of their momenta. (Ratio of momenta = 2:1)

21. Examples of Newton's law (I,II,III)

22. Give the applications of universal law gravitation.

ALL THE BEST

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