EINSTEIN'S ACADEMY

10TH STANDARD

SCIENCE 1ST CHAPTER

PART - I

Choose the correct answer 10 x1 =10

1. If a person whose mass is 60 kg stands on the surface of Earth, his weight would be .....N
a) 588 b) 5.88
c) 58.8 d) 5880

2. 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

3. Linear momentum is a ..... quantity.
a) scalar b) tensor
c) vector d) All

4) Newton's Ill law is applicable
a) for a body is at rest b) for a body in motion
c) both a & b d) only for bodies with equal masses

5) 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

6) Plotting a graph for momentum on the Y-axis and time on X-axis, slope of momentum-time graph gives
a) Impulsive force b) Acceleration
c) Force d) Rate of force

7) The amount of force required for a body of mass 1 kg produces an……
a) velocity b) acceleration
c) force d) momentum

8) In which of the following sport the turning of effect of force used
a) swimming b) tennis
c) cycling d) hockey

9) The mass of the body is measured on planet Earth as M kg. When it is taken to a planet of radius half that of the earth then its value will be …….kg.

a) 4 M b) 2 M
c) M d) 0

10. The value of acceleration due to gravity on the surface of the moon is.....m/s?

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

PART – II

10 x 2 = 20

Answer 10 question

11. What is inertia?
12. Define Linear momentum
13. To calculate the mass of the earth
14. Write the examples of impulsive force
15. Write the applications of Torque
16. State Newton Third Law.
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.
18. What is Equilibrant
19. State Newton First Law.
20. How does an astronaut float in a space shuttle?
21. Define Torque.
22. Calculate the weight of the person having mass 20 kg in a planet whose acceleration due to gravity is $3.2 m/s^2$.

PART - III

4 X 5 = 20

Answer (any 4) following

23. Give the applications of universal law gravitation.
24. An object having mass M initially at rest. After the force F given to the object it reaches a velocity V at one second.
a) Calculate the force
b) If the mass is doubled, find initial momentum and final momentum
c) If mass is half, calculate the force
25. Examples of Newton's law (I,II,III)
26. State Newton Second law and derive the equation.
27. 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)