

**Grade 10 – TN Samacheer Kalvi Science**  
**(Laws Of Motion & Optics)**

I Choose the correct answer:

1. Plotting a graph for momentum on the Y-axis and time on the X-axis, slope of the momentum-time graph gives  
a) Impulsive force      b) Acceleration      c) Force      d) Rate of Force
2. The unit of 'g' is  $\text{m s}^{-2}$ . It can be also expressed as  
a)  $\text{cm s}^{-1}$       b)  $\text{N kg}^{-1}$       c)  $\text{Nm}^2 \text{ kg}^{-1}$       d)  $\text{cm}^2 \text{ s}^{-2}$
3. One kilogram force equals to  
a) 9.8 dyne      b)  $9.8 \times 10^4 \text{ N}$       c)  $98 \times 10^4 \text{ dyne}$       d) 980 dyne
4. Inertia of a body depends on  
a) Weight of the object      b) acceleration due to gravity of the planet  
c) Mass of the object      d) Both a & b
5. A door is pushed, at a point whose distance from the hinges is 90 cm, with a force of 40N. Calculate the moment of the force about the hinges  
a) 30 Nm      b) 36 Nm      c) 40 Nm      d) 32 Nm
6. The refractive index of four substances A, B, C and D are 1.31, 1.43, 1.33, 2.4 respectively. The speed of light is maximum in  
a) A      b) B      c) C      d) D

II. Match the following:

Column - I	Column – II
1 Retina	a Path way of light
2 Pupil	b Far point comes closer
3 Ciliary muscles	c near point moves away
4 Myopia	d Screen of the eye
5 Hypermetropia	e Power of accommodation

III. Fill in the blanks:

1. The path of the light is called as \_\_\_\_\_.
2. The refractive index of a transparent medium is always greater than \_\_\_\_\_.
3. If the energy of incident beam and the scattered beam are same, then the scattering of light is called as \_\_\_\_\_ scattering.
4. According to Rayleigh's scattering law, the amount of scattering of light is inversely proportional to the fourth power of its \_\_\_\_\_.

IV. State whether the following statements are true or false.

1. The linear momentum of a system of particles is always conserved.
2. Apparent weight of a person is always equal to his actual weight
3. Weight of a body is greater at the equator and less at the polar region.
4. Turning a nut with a spanner having a short handle is so easy than one with a long handle.
5. There is no gravity in the orbiting space station around the Earth. So the astronauts feel weightlessness