



**MODEL PAPER, 2023**

Subject: Physics

Grade - IX

M. Marks: 60

Time: 3 Hours

**SECTION "A"**

**(MULTIPLE CHOICE QUESTIONS)**

**Q1. Choose the correct answer for each from the given options. Each question carries one mark. (12)**

(i) Heat is transfer of:

- (a) Pressure (b) Weight  
(c) Energy (d) All

(ii) If a machine performs 20j of work in 10 sec then its power is:

- (a) 200watt (b) 20 watt  
(c) 2 watt (d) 0.2 watt

(iii) A fixed temperature at which a pure liquid boils is called:

- (a) M.P (b) F.P  
(c) Both a and b (d) B.P

(iv) A body is in equilibrium when it has:

- (a) Uniform speed (b) Uniform acceleration  
(c) Both a and b (d) Zero acceleration

(v) Friction opposes motion between two bodies in contact because:

- (a) Charges on bodies (b) Weight of bodies  
(c) Roughness of surface (d) None of these

(vi) According to Newton's law of universal gravitation force  $\propto$  \_\_\_\_\_.

- (a)  $m^1m^2$  (b)  $1/r^2$

- (c)  $r^2$  (d) Both a and b

(vii) Spring balance is used to measure \_\_\_\_\_.

- (a) Mass (b) Weight  
(c) Electricity (d) Density

(viii) Formula  $F \times d$  is equal to:

- (a) Work (b) Energy

- (c) Torque (d) None of these
- (ix) Centripetal force is also known as:  
 (a) Inertia (b) Weight  
 (c) Tension (d) Both a and b
- (x) The linear momentum of an object can be calculated by multiplying the mass of object by its:  
 (a) Acceleration (b) Velocity  
 (c) Force (d) Time
- (xi)  $\sin\theta = \underline{\hspace{2cm}}$ .  
 (a)  $\frac{Perp}{Base}$  (b)  $\frac{Perp}{Hyp}$   
 (c)  $\frac{Base}{Hyp}$  (d) None of these
- (xii) Unit of spring constant is:  
 (a) Nm (b)  $Nm^{-2}$   
 (c)  $Nm^{-1}$  (d)  $Nm^2$

### SECTION "B"

Note: Attempt any eight questions from this section.

Q2. Define physics and write information of physics in daily life.

OR

What is significant figure and determine the significant figure from the following: (i) 200. (ii) 0.00509 (iii) 2.25

- Q3. Write difference between distance and displacement OR mass and weight.
- Q4. State Newton's 2<sup>nd</sup> law of motion and derive the expression for  $F = ma$ .
- Q5. What is torque? Write the factor in which torque depends.
- Q6. Why solids increases in size on heating. OR Explain different scales used in thermometers to measure the temperature.
- Q7. What is work done? At what angle between force and displacement the work done by a body will be maximum?

OR

According to physics there is no work if the person made an assignment on laptop? Why?

- Q8. A ball is dropped from height of 50m. what will be it's velocity before touching the ground.
- Q9. What will be moment of force? When 500N force is applied on a 40cm long spanner to tighten a nut?
- Q10. A man is pushing a wheel barrow on a horizontal ground with a force of 300N at an angle of  $60^\circ$  with ground. Find  $F_x$  and  $F_y$ .
- Q11. A cylinder contains  $60\text{cm}^3$  of air at a pressure of 140 KPa. What will be its volume be if the pressure on its increased to 420 KPa.
- Q12. Weight of Naveera is 700N on the earth's surface. What will be Naveera's weight at the surface of moon?
- Q13. A spring has constant  $K = 30\text{N/m}$ . what load is required to produce an extension of 4m?

### SECTION "C"

Note: Attempt any four questions from this section.

- Q14. What is friction? Write advantage and disadvantage of friction?
- Q15. What is kinetic energy? Derive its formula?
- Q16. Derive the expression for the Newton's law of gravitation on the basis of motion of satellite.
- Q17. State two conditions necessary for an object to be in equilibriums?
- Q18. What is pressure in fluids? Derive an expression for pressure inside a liquid?
- Q19. Derive an expression  $2as = v_f^2 - v_i^2$ .