BOARD OF INTERMEDIATE EDUCATION

JUNIOR INTER PHYSICS

MODEL PAPER

Time: 3 hours **Max. Marks: 60**

SECTION - A

I. **i) Very short answer type questions.**

ii) Answer ALL questions.

iii) Each question carries TWO marks. **$10 \times 2 = 20$**

1. What is contribution of S.Chandra Sekhar to physics?

2. How can systematic errors can be minimised or eliminated?

3. What is acceleration at the top of trajectory?

4. A batsman hits back a ball straight in the direction of bowler without changing its initial speed of 12 m/s. If the mass of ball is 0.15 kg determine impulse imparted to the ball.

5. Is it necessary that a mass should be present at the centre of mass of any system?

6. A tungsten wire of length 20 cm is elongated by 0.1 cm, then find strain in the wire.

7. Why are drops and bubbles spherical?

8. Give the equation for the value of 'g' at a depth 'd' from the surface of earth. What is the value of 'g' at the center of earth?

9. Why it is easier to perform the skating on snow?

10. State Dalton's law of partial pressure.

SECTION - B

II. **i) Short answer type questions.**

ii) Answer any SIX questions.

iii) Each question carries FOUR marks. **$6 \times 4 = 24$**

11. State and prove Parallelogram law of vectors. Derive an expression for the magnitude and direction of resultant vector.

12. A car travels first one third of distance with a speed of 10 kmph. The second third at 20 kmph and last third with 60 kmph. What is the mean speed of entire distance?

13. Explain advantages and disadvantages of friction.

14. State and prove perpendicular axis theorem.

15. What is escape velocity? Obtain an expression for it.

16. Describe the behaviour of wire under gradual increase of load.

17. Pendulum clocks go fast in winter and slow in summer. Why?

18. How specific heat capacity of mono atomic, diatomic & poly atomic gases can be explained on the basis of Law of Equipartition of energy?

SECTION - C

III. i) Long answer type questions.

ii) Answer any TWO questions.

iii) Each question carries EIGHT marks. **$2 \times 8 = 16$**

19. a) State and prove conservation of energy in case of freely falling body.

b) A machine gun fires 360 bullets per min. and each bullet travels with a velocity of 600 m/s. If mass of each bullet is 5 gm. Find the power of machine gun.

20. Show that motion of simple pendulum is simple harmonic and derive an equation for its time period. What is Second's pendulum?

21. Explain reversible and irreversible process.

Describe the working of Carnot heat engine and obtain the expression for the efficiency.