BOARD OF INTERMEDIATE EDUCATION

JUNIOR INTER PHYSICS

MODEL PAPER (ENGLISH VERSION)

TIME: 3 Hours **Max. Marks: 60**

SECTION - A

I. **i) All are very short answer type questions.**

ii) Answer ALL the questions.

iii) Each question carries TWO marks. **10 × 2 = 20**

1. What is the contribution of S.Chandra Sekhar in Physics?

2. State two constants which have same dimensions?

3. Give an example where the velocity of an object is zero but acceleration is not zero.

4. The vertical component of a vector is equal to its horizontal component. What is the angle made by the vector with X-axis.

5. Why does a car with flattened tyres stop sooner than the one with air filled tyres?

6. Is it necessary that a mass should be presented at centre of man?

7. If an iron wire is stretched by 1% what is strain on the wire?

8. Give an expression for the excess pressure an air bubble inside the liquid.

9. State Wein's displacement Law.

10. Define Law of equipartition energy.

SECTION - B

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

ii) Answer any SIX from the following.

iii) Each question carries FOUR marks. **6 × 4 = 24**

11. A bullet moving with a speed of 150 m/s strikes a tree and penetrates 3.5 cm. before stopping. What is the magnitude of retardation in the tree and time taken for it to stop after striking the tree.

12. Show that the trajectory of an object thrown at certain angle with horizontal is a parabola.

13. Why pulling the lawn roller is preffered than pushing the lawn roller?

14. Define vector product. Explain properties of vector product with examples.

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

16. Define strain energy and obtain an expression for it?

17. Explain conduction, convection, radiation with examples.

18. What is Renold's number? What is its significance?

SECTION - C

III. **i) Long Answer type questions**

ii) Answer any TWO questions

iii) Each question carries EIGHT marks **2 × 8 = 16**

19. a) Develop the notations of work and kinetic energy and show that it leads to work - energy theorem?

b) A pump on the ground floor of a building can pump up water to fill a tank of valume 30 m^3 in 15 min. If the tank is 40 m. above the ground and efficiency of pump is 30% how much electric power is consumed by the pump?

20. Define simple harmonic motion. Show that the motion of projection of a particle performing uniform circular motion on any diameter is simple harmonic.

21. a) State second law of thermodynamics. How is heat engine different from a refrigerator.

b) Refrigerator is to maintain eatables kept inside at 9°C. If room temperature is 36°C calculate coefficient of performance.