# MS JUNIOR COLLEGE
**Hyderabad**

## GUESS PAPER - 2
## INTERMEDIATE 1st YEAR

Time: 3hours          **PHYSICS - I**          Max.Marks:60

*INSTRUCTIONS:*

1.  Q.Nos: 1 - 10 are Very Short Answer Type.  Answer them in about 30 words each.  Each question carries 2 marks.
2.  Q. Nos: 11 - 18 are Short Answer Type.  Answer them in 75 - 100 words each.  Each question carries 4 marks.
3.  Q.Nos: 19 - 21 are Long Answer Type. Answer them in about 300 words each.  Each question carries 8 marks.

**I.  Answer All Questions: (Very Short Answer Type)**          **[10 x 2 = 20]**

1.  What is the contribution of S.Chandra Sekhar to Physics?
2.  What are significant figures and what do they represent when reporting the result of a measurement?
3.  $\vec{A} = \vec{i} + \vec{j}$ . What is the angle between the vector and x-axis?
4.  A horse has to pull harder during the start of the motion than later. Explain.
5.  Give an expression for the excess pressure for the soap buble in air?
6.  States wein's displacement law.
7.  A thermos flask containing a liquid is shaken vigourously. What happens to its temperature?
8.  What are the lower and upper fixed points of celsius and Fahrenheit Scale?
9.  State Dalton's law of partial pressure.
10. State Units and Dimention of Bulk Modulus.

**II.  Answer any Six : (Short Answer Type)**          **[6 x 4 = 24]**

11. A bird holds a fruit in its beak and flies parallel to the ground. It lets drop the furit at some height. Describe the trajectory of the fruit as it falls to the ground as seen by a) the bird (b) a person on the ground.

12. Show that the maximum height and range of a projectile are $\dfrac{U^2 \sin^2 \theta}{2g}$ and $\dfrac{U^2 \sin 2\theta}{g}$ respectively where the terms have their regular meanings.

13. Why is pulling the lawn roller preferred to pushing it?
14. Define angular velocity, Derive $v = r\omega$.
15. Explain the concept of Elastic potential energy in a stretched wire and hence obtain the expression for it.
16. Define escape velocity? Obtain an expression for it.
17. Explain triple point of water.
18. State and explain Newton's Law of cooling. State the conditions under which Newton's Law of cooling is applicable.
    A body cools down from $60^0$C to $50^0$C in 5 minutes and to $40^0$C in another 8 minutes. Find the temperature of the surroundings.

**III.  Answer any Two : (Long Answer Type)**          **[2 x 8 = 16]**

19. What are collisions? Explain the possible types of collisions? Develop the theory of one dimensional elastic collision.
20. Show that the motion of a simple pendulum is simple harmonic and hence derive an equation for its time period. What is seconds pendulum?
21. State second law of thermodynamics. How is heat engine different from refrigerator.

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