(FOR THE CANDIDATES ADMITTED

DURING THE ACADEMIC YEAR 2024-25 ONLY)

SUBJECT CODE | 24 UPS 101

REG.NO.

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : NOVEMBER – 2024

B.Sc. – PHYSICS   **MAXIMUM MARKS: 75**

I SEMESTER   **TIME : 3 HOURS**

PART – III
PROPERTIES OF MATTER AND SOUND

SECTION – A   (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.   (K1)

1. The force acting per unit area is

    a) stress   b) strain   c) youngs modulus   d) Hookes law

2. A beam fixed horizontallyat one end and loaded at the other end, it is referred as

    a) cantilever   b) rod   c) rigitity modulus   d) neutral axis

3. The spherical shape of a small liquid drop is due to

    a) surface tension   b) viscosity   c) mass   d. density

4. Which one of the followings is constant in simple harmonic motion?

    a) amplitude   b) phase   c) K.E   d) P.E

5. The frequency range of ultrasonic waves is

    a) 20000 Hz and above   b) less than 20000 Hz   c) 20Hz   d) less than 20 Hz

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

6. Define the term "strain".

7. What is a beam?

8   What do you mean by surface tension?

9. Define the term "simple harmonic motion".

10. What is reverberation?.

SECTION – B   (5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.   (K3)

11. a) What is Hooke's law?. Define the three moduli of elasticity.

(OR)

    b) Deduce the relation between the three elastic constant and Poisson's ratio.

ETHICAL PAPER

12. a) Derive the expression for bending moment of a beam.

(OR)

b) Describe the experiment to find young's modulus by non-uniform bending.

13. a) Derive the expression for excess pressure over a curved surface.

(OR)

b) Write notes on stream line and turbulent flow of liquid.

14. a) Describe the experiment to find AC frequency using Sonometer.

(OR)

b) Write notes on resonance and sharpness of resonance.

15. a) What are the factors affecting the acoustics of building? Explain.

(OR)

b) Describe a method of production of ultrasonic by Magnetostriction method.

SECTION – C (5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K4/K5)

16. a) Derive the expression for rigidity modulus by static torsion method.

(OR)

b) What is the work done in a stretching the wire? Deduce the expression for it.

17 a) Describe theory of depression at the loaded end of the cantilever by oscillation method.

(OR)

b) Describe an experiment to determine young's modulus by Koenig's method.

18. a) Describe the poiseuille's method of determining coefficient of viscosity of a liquid.

(OR)

b) Determine the surface tension of a liquid using Jaeger's method. Write the procedure and experimental setup.

19. a) Explain the composition of two simple harmonic motion in a straight line and at right angles to each other.

(OR)

b) Describe the method of determination of frequency of an electrically tuned vibrator by Melde's method.

20. a) Write an essay on application of ultrasonic waves in different field.

(OR)

b) What is reverberation time? Deduce the Sabine's reverberation formula.

ETHICAL PAPER

****