(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2025-26 ONLY)

SUBJECT CODE 25 UPS 101

REG.NO.

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

END-OF-SEMESTER EXAMINATIONS : NOVEMBER – 2025

B.Sc. – PHYSICS **MAXIMUM MARKS: 75**

SEMESTER: I **TIME : 3 HOURS**

PART – III

PROPERTIES OF MATTER AND SOUND

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS. (K1)

1. The ratio of stress to strain is ----- according to Hookes law.

   a).stress b) constant c) maximum d) zero

2. A --------is a beam fixed horizontally at one end and loaded at the other end,

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

3. The example of surface tension is …….

   a) spherical shape of liquid drop b) viscus liquid c) oil drop d) density

4. In a simple harmonic motion -----is constant

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

5. The method used to produce ultrasonic waves is ------

   a) piezo electric method b) magnetostriction method

   c) Hall effect method d) none of the above

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

6. Define the term strain.
7. What is known as uniform bending?
8. Which one is referred as streamline motion in a liquid?
9. Define “damped vibrations”. Give example.
10. What is reverberation? .

SECTION – B (5 X 5 = 25 MARKS)

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

11. a) State and explain Hooke’s law. Define the three moduli of elasticity.

(OR)

b) Define Poisson’s ratio ,young modulus and bulk modulus,

12. a) Deduce an expression for depression while a cantilever is loaded at the end.

(OR)

b) Describe the experimental procedure to determine the Young’s modulus of given material otarod by uniform bending.

(CONTD …. 2)

13. a) Deduce the expression to obtain the excess pressure of a liquid over curved surface and extend it to spherical surface.

(OR)

b) Describe the concept of rate of flow of liquid in a capillary tube.

14. a) What are known as Lisscijous's figures?

(OR)

b) Describe the resonance and sharpness of resonance.

15. a) Write a note on "the factors affecting the acoustics of building". How are they useful is study tree vibrations.

(OR)

b) Explain the production of ultrasonic waves by Piezoelectric method.

SECTION – C (5 X 8 = 40 MARKS)

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

16. a) Derive the expression for rigidity modulus by twisting of a cylinder.

(OR)

b) Deduce an expression to determine the work done in a stretched wire.

17. a) Explain the bending of a beam and derive expression for bending moment of a beam.

(OR)

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

18. a) Discuss poiseuille's method for determining coefficient of viscosity of liquid.

(OR)

b) Describe the experiment to determine surface tension using Jaeger's method.

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

(OR)

b) Describe an experiment to determine the frequency of AC using sonometer.

20. a) Narrate the applications of ultrasonic waves in various field.

(OR)

b) Derive Sabine's formula for reverberation time.

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