

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2022
(First Semester)

Branch – PHYSICS

PROPERTIES OF MATTER AND SOUND

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

1. Bending moment in the a beam is not a function of
(i) position of the load (ii) type of beam
(iii) cross section of the beam (iv) span of the beam
2. Identify the rise of temperature, the viscosity of liquid
(i) Increase
(ii) Decrease
(iii) Remains unchanged
(iv) May increase or decrease depending on nature
3. When the angle of contact is below liquid and solid is 90° then.....
(i) $f_c > f_a$ (ii) $f_c < f_a$ (iii) $f_c = f_a$ (iv) $f_c \gg f_a$
4. The velocity of a particle , executing S.H.M is
(i)Maximum (ii)Minimum (iii)Infinity (iv)Zero
5. Find the sound of frequency higher than 20,000 Hz which are inaudible to normal human ear are Called.....
(i)Noise (ii) Frequency (iii) Ultrasonic (iv)Amplitude

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

6. (a) Explain the three modulus of elasticity.
(or)
(b) Compare the uniform and non-uniform bending.
7. (a) Explain the term viscosity.
(or)
(b) State and explain the Stoke's law.
8. (a) Explain any two applications of surface tension.
(or)
(b) Outline variation of surface tension with temperature.
9. (a) Describe the plane progressive waves.
(or)
(b) Analyze the Doppler's effect.
- 10.(a) Outline the properties of ultrasonics.
(or)
(b) Explain the absorption coefficient of a material.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

11. (a) Discuss the torque per unit twist of a cylinder.
(or)
(b) Derive an expression for the bending moment of a bar.
12. (a) Enumerate the corrections to be applied to Poiseuille's equation.
(or)
(b) Describe and explain the Rankine's method for determining of viscosity of a gas.
13. (a) Highlight the surface tension on kinetic theory.
(or)
(b) Explain experimental determination of Osmosis pressure.
14. (a) Analyze the velocity of transverse wave on a string.
(or)
(b) Differentiate the resonance and sound waves in gases.
15. (a) Explain how ultrasonics are produced in a magnetostriction oscillator.
(or)
(b) Point out the factors affecting the acoustics of buildings.

Z-Z-Z

END