

VP & RPTP Science College-Vallabh Vidyanagar

Internal Test: 2015

F Y BSc [Semester-I]

Subject-Physics US01CPHY01

Date: 06/10/2015 Tuesday

Time: 1.30 pm to 2.30 pm

Total Marks-25

Q-1 Multiple Choice Questions: [Attempt all]

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- (i) The reciprocal of bulk modulus is known as _____.
(a) Elasticity (b) Plasticity
(c) Compressibility (d) Susceptibility
- (ii) If the material of a beam is _____, no bending in beam should be produced.
(a) Elastic (b) Plastic
(c) Homogeneous (d) Isotropic
- (iii) Sound wave is _____ wave.
(a) Mechanical (b) Electric
(c) Magnetic (d) Electromagnetic



Q-2 Answer the following questions in short [Attempt any two].

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- (a) Define Young's modulus and Bulk modulus.
(b) Explain the basic assumptions for the theory of bending.
(c) Define longitudinal waves and transverse waves.

Q-3 Derive the expression $K = \frac{1}{3(\alpha-2\beta)}$ for deformation of a cube.

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OR

Q-3 Discuss the method for the determination of Poisson's ratio for rubber tube in

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detail and derive the expression $\sigma = \frac{1}{2} \left| 1 - \frac{1}{A} \frac{dV}{dL} \right|$ for Poisson's ratio.

Q-4 Derive the equation for the couple per unit twist $C = \frac{\pi \eta r^4}{2l}$ produced in a cylindrical wire.

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OR

Q-4 What is cantilever? Obtain expression $y = \frac{WL^3}{3YI_g}$ for the depression produced in a cantilever when it is loaded at free end.

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Q-5 Obtain expression for velocity of sound in a gaseous medium.

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OR

Q-5 Discuss the Kundt's tube method for determination of sound velocity in the metal rod and derive the necessary expression.

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