2016

Time : 3 Hours

Full Marks - 75

Candidates are required to give their answers
in their own words as far as practicable

The questions are of equal value

Answer any six questions, selecting at least one from
Group A and four from Group B and one from Group C

Group A

1. Derive Lorentz transformation and discuss the concept
   of length contraction and time dilation.

2. Write short notes on any two of the following

   a)   Variation of mass with velocity.

   b)   Gallelian Transformation

   c)   Realivistic Doppler effect

Group B

3. State and explain Kepler's law of planetany motion.
   Establish these laws.

4. Discuss the flexure of beam. How young's modulus of
   elasticity is obtained?

5. Define coefficient of viscosity. Describe determination
   of viscosity of gas with the help of Rankin's method.

6. Define flat spiral spring. How modulus of rigidity is
   determined with help of modulus of flat spiral spring.

7. Define ripples and gravity waves. Discuss determination
   of surface tension by method of ripples.

8. Define gravitational potential. How gravitational potential
   of a spherical shell is determined.

9. Write short notes on any two of the following :

a) Different type of elastic constant.

b) Principle of virtual work.

c) Poisselleue's formula.

d) Distinction between isothormal and adiabatic elasticity.

Group C

10. Define progressive and stationary wave. Obtain equation of.

11. Set up forced vibration. Explain amplitude and frequency resonanace.

12. Write short notes on any two of the following :

a) Accoustics of building.

b) Free vibration

c) Intensity of sound.

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