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Printed Pages : 4

B.Sc. Part-I (Hons.) Examination, 2019

PHYSICS

[SUBSIDIARY/GENERAL]

[Paper : First]

[PPU-D-I(SUB/GEN)-PHY]

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt any six questions, selecting three from Group-A, one from Group-B and two from Group-C.

GROUP - A

1. Describe Michelson-Morley experiment ? How is the negative result the experiment interpreted ?
2. Write the statement of Bernoulli's theorem and deduce the Bernoulli's equation.
3. What are Kepler's laws of planetary motion ? Derive it.
4. Describe Rankine's method of determining the viscosity of liquid with full theory.

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[P.T.O.]

5. Discuss the postulates of special theory of relativity and prove that $E^2 - P^2C^2 = m_0^2C^4$.
6. What is a cantilever ? Derive an expression for the depression of the loaded end of cantilever of :
 - (i) Circular cross section and
 - (ii) Rectangular cross section of negligible weight.

GROUP - B

7. What are damped vibration ? Establish the differential equation of motion for damped harmonic oscillator.
8. Derive an expression for the speed of a compressional wave through an extended solid.

GROUP - C

9. What is Stefan's law of radiation ? Give thermodynamic deduction of Stefan's law. <http://www.ppuonline.com>
10. What is meant by perfect gas ? Establish Vander Waals' equation of state.

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11. Write short notes on any three of the following :

- (a) Black body radiation
- (b) J-T effect
- (c) Laws of Thermodynamics
- (d) Kirchhoff's law
- (e) Carnot's cycle

12. Write the law of equipartition of energy. Obtain an expression for the dependence of specific heat of gases on the degrees of freedom. Discuss the variation of the ratio of specific heat of diatomic gas with temperature ?

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