



**AJ-16049**

Seat No. \_\_\_\_\_

**Second Year B. Sc. (Sem. III) (Non CBCS) Examination**

**March / April – 2016**

**P-301 : Physics : Paper - III**

Time : 3 Hours]

[Total Marks : 75]

**Instructions :** (1) All questions are compulsory.  
(2) Symbols have their usual meaning.  
(3) Right side figures indicates marks.

**1** (a) Derive the Poiseuille formula for the rate of flow of liquid through a capillary tube. **10**  
(b) Explain : Reynold's Number **5**

**OR**

**1** (a) Derive a different expressions for change in entropy of an ideal gas. **10**  
(b) Explain : Entropy. **5**

**2** (a) Derive the Plank's distribution law for the radiant energy and explain all the aspects of black body radiation. **10**  
(b) Explain : Important properties of radiant heat. **5**

**OR**

**2** (a) Derive an expression for the potential and electric field due to electric dipole. **10**  
(b) Explain : The potential of charge sphere. **5**

**3** (a) Explain the characteristic and behavior of Paramagnetic, Diamagnetic and Ferromagnetic substance. **10**  
(b) Explain : Magnetic field due to solenoid. **5**

**OR**

**3** (a) Describe Michelson-Morley experiment and discuss its results. **10**  
(b) Explain : Mass energy relationship. **5**

4 (a) What is biasing? Explain the voltage divider biasing method and its merits. **10**

(b) Explain : "Stability factor". **5**

**OR**

4 (a) Describe the Phase reversal in CE transistor amplifier, give its graphical representation. **10**

(b) Explain : Classification of amplifiers. **5**

5 Write notes : (any three) **15**

- (1) Hall effect.
- (2) Preparation of Radio elements.
- (3) Frequency response of RC coupled transistor amplifier.
- (4) Electric field around a charge sphere.
- (5) Applications of Radioisotopes.

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