

81. 1st half-10-DD (E)  
Con. 2711-10. <sup>Sem - I</sup> (R)

## Physical Pharmacy - I

MX-8453

11/5/10

(2 Hours)

[ Total Marks : 40

**N.B.** (1) Question No. 1 is **compulsory**.

(2) Attempt any **four** questions from the remaining **five** questions.

(3) **All** questions carry **equal** marks.

(4) Draw neat labelled **diagrams** wherever **necessary**.

1. (a) State the Laws of Thermodynamics. 4  
(b) Give the principle behind liquefaction of gases. Explain Claude's method. 4
  2. (a) Justify 'Elevation in boiling point is a colligative property.' Give its applications. 4  
(b) A solution containing 10 gms of sucrose dissolved in 100 gms of water has a boiling point of 100.149°C. What is the molecular weight of sucrose ? 4
  3. (a) Explain Raoult's Law and account for positive and negative deviations from Raoult's Law. 4  
(b) Enlist various methods for measurement of osmotic pressure. Describe the working of the modern Osmometer in detail. 4
  4. (a) Explain working of the Brookefield Viscometer. 4  
(b) What is 'dipole moment' ? Explain a method for determination of dipole moment. Give its applications. 4
  5. (a) A steam engine operates between the temperatures of 373 K and 298 K. 4  
(i) What is the theoretical efficiency of the engine ?  
(ii) If the engine is supplied 1000 cal of heat, what is the theoretical work in ergs ?  
(b) Explain the following terms :— 4  
(i) Dielectric constant  
(ii) Transport number  
(iii) Cell constant  
(iv) Specific conductance.
  6. Write short notes on any **two** of the following :— 8  
(a) Conductometric Titrations  
(b) Abbe's Refractometer  
(c) Hess's Law of Constant Heat Summation.
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