

## Assignment-I

### CH(CHE)-302-Chemistry

1.
  - i) Explain the origin of charges for colloids. Why colloid is stable? Discuss the usefulness of ultracentrifugation over sedimentation.
  - ii) What do you understand by the terms 'electrophoresis' and 'electro-osmosis'?
  - iii) What is Gold Number? 5+3+3+3+1
  
2.
  - i) What is intrinsic viscosity? Give mathematical expression. How could you determine the molar mass of a macromolecule from viscosity measurement?
  - ii) Find out the expression for the terminal velocity  $u$  of a metallic sphere of radius  $r$  falling through a liquid of viscosity coefficient  $\eta$  using 'Stokes law'.
  - iii) Derive Poiseuille's equation. 1+1+3+5+5
  
3.
  - i) Discuss the principle of measurement of relative surface tension of a liquid by drop number method.
  - ii) How do you determine surface tension by capillary rise method?
  - iii) Twenty drops of benzene falling from a stalagmometer weighed 0.7048 gm at 12 °C. When the experiment was repeated at 70 °C, twenty drops weighed 0.5306 gm. What is the critical temperature of benzene? The densities of benzene at these temperatures are 0.8880 and 0.8266 gm/cc. 5+5+5

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