

V.P. & R.P.T.P.SCIENCE COLLEGE
B.Sc.(SEMESTER – V) INTERNAL EXAMINATION

Physical Chemistry: US05CCHE05

Time: 11:00 a.m. to 12:30 p.m.

Date: 07-10-2017, Saturday

Total Marks: 25

Q – 1 : Choose the correct option from the following. (Multiple choice question) [03]

- (i) Mathematical form of absorbance A is
(a) $\log(I_t/I_0)$ (b) $\log(I_0/I_t)$ (c) $\ln(I_0/I_t)$ (d) $\ln(I_t/I_0)$
- (ii) The quantity which is independent of the concentration of a solution and is the limiting value of the reduced viscosity is known as _____
(a) specific viscosity (b) relative viscosity (c) inherent viscosity (d) intrinsic viscosity
- (iii) Which of the following additives is added during the polymerization?
(a) plasticizers (b) thermal stabilizers (c) chain transfer agents (d) none of the above

Q – 2 : Answer the following. (Any two) [04]

- (i) Define chemiluminescence and electroluminescence.
- (ii) What is the molecular weight of polyvinylchloride polymer containing 1,500 repeat units?
- (iii) Differentiate between thermoplastic and thermosetting polymer.

Q-3 Differentiate between photochemical reaction and thermal reaction. [06]

OR

Q-3 What is quantum yield? Discuss the reasons of high and low quantum yield. [06]

Q-4 (a) Discuss the mechanism and kinetics of free radical polymerization. [06]

OR

Q-4 (a) Distinguish between addition and condensation polymerization. [03]

(b) At the end of polymerization of P-hydroxybenzoic acid, IR analysis shows 0.17 mole percentage unreacted acid (-COOH). Calculate molecular weight of polymer. [03]

Q-5 (a) Describe the bulk and solution polymerization technique. Mention the advantages, disadvantages and its applications also. [06]

OR

Q-5 (a) Write the principle, draw the sketch and describe the membrane osmometric method for the molecular weight determination of polymer. [03]

(b) Calculate \overline{M}_n , \overline{M}_w and polydispersity of a polymer sample containing chains of different masses as follow: [03]

Number:	N	10	20	30	50
Mass:	M	500	1000	5000	10000

