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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: 05-10-2016, Wednesday **Total Marks: 25**

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

(i) Which process from the following occurs when the light falls on the glass?

(a) Absorption (b) Reflection (c) Transmittance (d) All of above

(ii) Tailor made block copolymers can be synthesis by _____.

(a) free radical polymerization (b) cationic polymerization
(c) anionic polymerization (d) all of the above

(iii) Weight average molar mass of a polydispersed sample of polymer is _____

(a) smaller than number average molar mass (b) larger than number average molar mass
(c) equal to the number average molar mass (d) none of the above

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

(i) Define photochemical reaction and give one example.

(ii) What is the molecular mass of polyethylene polymer containing 4,000 repeat units?

(iii) Differentiate: Homopolymer and Copolymer.

Q–3 Discuss the law of photochemical equivalence. [06]

OR

Q–3 Discuss the factors affecting fluorescence and phosphorescence. [06]

Q–4 (a) Discuss the mechanism and kinetics of cationic polymerization. [06]

OR

Q–4 (a) Distinguish between chain-growth and step-growth 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 suspension polymerization technique. Mention the advantage, disadvantage and its application. [03]

(b) Discuss the polydispersity and molecular weight distribution in polymers. [03]

OR

Q–5 (a) Describe the dilute solution viscosity method for the molecular weight determination of polymer. [03]

(b) Equal number of polymer molecules with moleculare weight M_1 = 10,000 ,M_2 = 50,000 and M_3 = 80,000 are mixed then what is the number average and weight average molecular weight of polymer sample. [03]