B.TECH. SEM -VI (CHEMICAL 2014 COURSE (CBCS) : WINTER - 2017

SUBJECT: ELECTIVE – II POLYMER TECHNOLOGY

Day: **Friday** Time: **10.00 AM TO 01.00 PM**

Date: **24/11/2017** Max Marks. 60

W-2017-2179

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Use to the non - programmable **CALCULATOR** is allowed.
4) Neat diagrams must be drawn **WHEREVER** necessary.
5) Assume suitable data if **NECESSARY**.

Q.1 **a)** What is the difference between step growth & chain growth polymerization? Explain in details. **(06)**

b) How polymer microstructure affects its properties? **(04)**

OR

a) Explain the classification polymers and polymerization reactions? **(07)**

b) How homopolymers differs from heteropolymers? **(03)**

Q.2 **a)** What is difference between weight average, number average and viscosity average molecular weight of polymer? Explain its importance. **(06)**

b) What is stereo-isomerism? How it affects polymer properties? **(04)**

OR

a) What is molecular weight distribution in polymers? Explain its importance. **(05)**

b) What are the factors affecting chemical, thermal and mechanical properties of polymers? Explain them. **(05)**

Q.3 **a)** What are benefits and limitations of bulk polymerization? **(04)**

b) What is copolymerization? Explain is Kinetics. **(06)**

OR

a) What are merits and limitations of solution polymerization? **(04)**

b) What is Ziegler – Natta catalyst? Explain its importance and reaction mechanism. **(06)**

Q.4 What is glass transition temperature in polymers? What is its importance? Which are the factors influencing glass transition temperature in polymers? Explain in details. **(10)**

OR

a) What is crystallinity? How it affects polymer properties? Explain in details. **(06)**

b) Which are the factors influencing chemical & geometrical microstructure of polymers? Explain in details. **(04)**

Q.5 What are polymer blends and composites? Explain their differences with importance and applicability. **(10)**

OR

a) What is fiber reinforced composites? Explain their importance. **(05)**

b) What are polymer alloys? What is their importance? **(05)**

Q.6 What is polymer compounding? Explain its need and significance, along with methods of compounding. **(10)**

OR

a) What is compression molding? Explain its working and applicability. **(05)**

b) How the rubber is processed using two roll mill? Explain its applicability. **(05)**

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