



UNIVERSITY OF RUHUNA

Faculty of Engineering

Mid-Semester 7 Examination in Engineering: June 2014

Module Number: ME7330

Module Name: Polymer Technology

[Two Hours]

[Answer all questions, each question carries five marks]

- Q1. Suggest the best polymer candidate for each of the following applications and explain the reasons for your selection.
- a) Coating for nonstick pans
 - b) Aquaria and marine centers viewing panels
 - c) Bullet-proof Glass
 - d) Ice cube molds
 - e) Food packages
- [5.0 Marks]
- Q2. a) Discuss on factors affecting crystallinity of polymers.
- [1.0 Mark]
- b) What is glass transition temperature? Discuss on importance of glass transition temperature.
- [1.0 Mark]
- c) Explain following terms with suitable diagrammatic representation, Give one example each.
- i) Block co-polymers
 - ii) Branched Polymers
 - iii) Cross-linked polymers
 - iv) Vinyl Polymers
 - v) Graft co-polymers
- [3.0 Marks]
- Q3. a) Briefly explain the function of extruder while identifying the major components of extruder by presenting a sketch.
- [2.0 Marks]
- b) Discuss the advantages and disadvantages of extrusion blow molding.
- [2.0 Marks]
- c) Give five applications where extrusion is used to produce.
- [1.0 Mark]

Q4. a) Discuss on followings with the aid of a sketch of its structure.

- i) Tacticity
- ii) Thermoplastics
- iii) Thermosets
- iv) Thermoplastic elastomers

[2.4 Marks]

b) What is degree of polymerization?

[0.6 Marks]

c) Polypropylene contains molecules having following molecular weights 2 of 10,000 g/mol and 3 of 30,000g/mol and 5 of 50,000 g/mol. Calculate number average and weight average degree of polymerization.

[2.0 Marks]