

Menoufia University
Faculty of Engineering, Shebin El-Kom
Basic Engineering Science Department
2nd Semester Examination, 2016-2017
Date of Exam: 10 / 6 / 2017



Subject: Polymer Physics
Code: BES638
Year: Postgraduate (Engineering
Physics)
Time Allowed : 3 hours
Total Marks : 100 marks

Answer the following questions.

Question 1

(20 marks)

- a) Clarify the classification of polymers based on organic, element-organic (hetero-organic) and inorganic
- b) What is the difference between regular and irregular polymers?

Question 2

(20 marks)

- a) Compare between the types of the active centre in chain polymerization reactions.
- b) Explain the effect of temperature and pressure on the polymerization rate.

Question 3

(20 marks)

- a) Distinguish the difference between polar and non-polar polymers.
- b) Define the polymerization process and write on the specific feature of chain polymerization.
- c) What are the essential characteristics of a good phase change materials (PCMs)?

Question 4

(20 marks)

Illustrate the effect of the Nano-PCMs in the following systems:

- i) Thermal energy storage systems
- ii) Microelectronics cooling systems
- iii) HVAC
- iv) Textile engineering

Question 5

(20 marks)

Mention the main forms of the solar energy storage systems? Discuss them in details and compare these types regarding their advantages and disadvantages?

With our Best Wishes