Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **15CH2001** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **POLYMER SCIENCE AND TECHNOLOGY IN MEDICINE** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 × 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Define: polydispersity index of a polymer. | CO1 | 2 |
| b. | Discuss the properties of floating delivery systems. | CO1 | 2 |
| c. | Write the reaction of the preparation of silicone polymer. | CO2 | 2 |
| d. | Describe the following: (i) Microencapsulation, (ii) Bioartificial organs. | CO1 | 14 |
| (OR) | | | | |
| 2. | a. | How is PMMA prepared? | CO2 | 2 |
| b. | Explain chain polymerization with examples. | CO2 | 2 |
| c. | Mention any two factors affecting transdermal permeation. | CO1 | 2 |
| d. | Explain the following: i. Mechanism of controlled release from polymers ii. Adsorption and solubility of polyelectrolytes | CO4 | 14 |
|  | | | | |
| 3. | a. | What is meant by molecular self-assembly? Give examples. | CO1 | 2 |
| b. | What are the advantages of PLGA as drug delivery agent? | CO1 | 2 |
| c. | Define: Flash nanoprecipitation | CO2 | 2 |
| d. | Describe the following with relevance to drug delivery: |  |  |
| i. Polymeric microspheres | CO1 | 4 |
| ii. Polymeric nanoparticles | CO1 | 4 |
| iii. Microgels and nanogels | CO2 | 6 |
| (OR) | | | | |
| 4. | a. | What are temperature-responsive polymers? Give an example. | CO2 | 2 |
| b. | Mention any two advantages of liposomes. | CO4 | 2 |
| c. | Define: Emulsification | CO1 | 2 |
| d. | Explain the role of the following in drug delivery: |  |  |
| i. Lipid polymer hybrid nanoparticles | CO1 | 7 |
| ii. Cross-linked chitosan nanoparticles | CO2 | 7 |
|  | | | | |
| 5. |  | Give an elaborate account of the thermal and elastic behaviors of polymers. | CO4 | 20 |
| (OR) | | | | |
| 6. |  | Explain the applications of polymer nanocomposites in drug delivery. | CO3 | 20 |
|  | | | | |
| 7. |  | Elaborate the medical applications of polymers. | CO3 | 20 |
| (OR) | | | | |
| 8. |  | Describe the functional role of micelles and liposomes in medicine. | CO5 | 20 |
|  | | | | |
| 9. |  | **Compulsory:**  Explain the degradation of polymers and elimination in biosystems. | CO5 | 20 |

ALL THE BEST