



- Notes :
1. All questions carry equal marks.
 2. Question No.1 is compulsory.
 3. Illustrate your answers wherever necessary with the help of neat sketches.
 4. Answer **any four** question from remaining.

1. Answer **any four** of the following. 16
 - a) Discuss the principle of LAL test.
 - b) Differentiate between water for injection and sterile water for injection.
 - c) Add a key note an co-acervation phase separation technique.
 - d) Give account on oral controlled release dosage form.
 - e) Write a note on monoclonal antibodies.
2. a) Discuss various parenteral routes of administration. 8
b) Explain various evaluation test used for microcapsules. 8
3. Explain physicochemical and biological factor's affect drug to design controlled release dosage form. 16
4. Give detail account on formulation of parenteral. 16
5. a) Discuss about osmotic presure controlled drug delivery system. 8
b) Explain about gel diffusion controlled drug delivery system. 8
6. What do you mean by drug targeting? Discuss various carries used for drug targeting. 16
7. Write note on **any two** of the following. 16
 - a) Spray drying and spray congealing.
 - b) Hydrodynamically balanced systems.
 - c) Polymer properties and its effect on drug permeation in controlled Release dosage form.
 - d) Sterility testing of parenteral.
