

GUJARAT TECHNOLOGICAL UNIVERSITY**B.PHARM - SEMESTER- 7 EXAMINATION – SUMMER-2024****Subject Code:BP704TT****Date: 14/05/2024****Subject Name: Novel Drug Delivery System****Time: 02.30 p.m. to 5.30 p.m.****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain the terms delayed release, extended release and controlled release. Discuss merits of controlled release drug delivery systems. **06**
- (b) Describe the physicochemical properties of drug molecule required for controlled drug delivery system. **05**
- (c) Classify controlled release drug delivery systems. Describe matrix systems. **05**
- Q.2** (a) What is transdermal drug delivery system (TDDS)? Describe matrix formulation approach for TDDS. **06**
- (b) Describe the factors affecting permeation of drug through barrier of skin. **05**
- (c) What is mucosal drug delivery? Describe theories of muco-adhesion. **05**
- Q.3** (a) Differentiate between liposome and niosome. Describe their therapeutic application. **06**
- (b) Classify various methods for preparation of liposomes. Explain remote loading method in detail. **05**
- (c) What are nanoparticles? Discuss evaluation of nanoparticles. **05**
- Q.4** (a) What are monoclonal antibodies? Describe their advantages, limitations and applications. **06**
- (b) Name the intraocular barriers to drug permeation. Describe methods to overcome intra ocular barriers of the eye. **05**
- (c) What is ophthalmic in situ gel? Describe different type of ocular inserts. **05**
- Q.5** (a) Enlist methods of microencapsulation. Discuss spray drying and spray congealing method. **06**
- (b) Differentiate between microsphere and microcapsule. Discuss advantages and limitations of microencapsulation. **05**
- (c) What are intrauterine devices (IUDs)? Discuss hormone releasing IUDs. **05**
- Q. 6** (a) What is implantable drug delivery? Describe Higuchi Leeper pump. **06**
- (b) What are osmotic tablets? Discuss multiple chamber osmotic pumps with diagram. **05**
- (c) Explain glass transition temperature of polymer. Describe smart polymers with examples. **05**
- Q.7** (a) Explain gastro-retentive drug delivery system (GRDDS). Describe advantages and limitations of GRDDS. **06**
- (b) Enlist approaches for gastric retention. Discuss high density and raft forming approaches. **05**
- (c) Compare and contrast metered dose inhalers and dry powder inhalers for drug delivery. **05**