Total No. of printed pages = 4

BP 704 T

2024

B.Pharm. 7th Semester End-Term Examination

NOVEL DRUG DELIVERY SYSTEMS

Full Marks – 75 Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following (Multiple Choice Questions) : 1 × 20

(i) The polymer used in "Lacrisert" is (CO2)

(a) Hydroxy ethyl cellulose (b) Hydroxy methyl cellulose

(c) Methyl cellulose (d) Hydroxy propyl cellulose

(ii) An ocular device that has the shape of a flag (CO2)

(a) Ocusert (b) Lacrisert

(c) NODS (d) SODI

(iii) Alzet is an example of _____ type of parenteral system. (CO2)

(a) Osmotic pressure activated (b) Vapour pressure activated

(c) Magnetically activated (d) Hydration activated

(iv) Excipient to increase density of GRDDS is (CO1)

(a) Zinc oxide (b) Talc

(c) Sodium bicarbonate (d) Calcium carbonate

(v) _____ is a dispersed matrix system. (CO1)

(a) Nanospheres (b) Nanoparticles

(c) Nanocapsules (d) Nanopolymers

(vi) Microspheres are prepared by coacervation using (CO1)

(a) Non solvent (b) Trituration

(c) pH (d) Pressure

(vii) A microcapsule has _____. (CO1)

(a) Drug dispersed in matrix

(b) Drug core surrounded by distinct wall

(c) Drug absorbed on the surface

(d) Drug distributed in polymeric matrix

(viii) An ion-exchange DDS contains a cationic drug complexed with a resin containing (CO2)

(a) SO_3^- (b) Aq. NaOH

(c) $N(CH_3)_3^+$ (d) Aq. KCL

(ix) Use of monoclonal antibodies for drug delivery to tumors is (CO2)

(a) Active targeting (b) Passive targeting

(c) Triggered drug targeting (d) Vector targeting

(x) Nasal secretions in adults have a normal pH range between (CO2)

(a) 5.5-6.5 (b) 6.8-7.5

(c) 8.0-8.5 (d) 1.5-3.5

(xi) Chitosan is a _____ mucoadhesive polymer. (CO2)

(a) Cationic (b) Anionic

(c) Synthetic (d) Non-ionic

(xii) Nitro-Dur is an example of (CO2)

(a) Ocular DDS (b) Transdermal DDS

(c) GRDDS (d) None of the above

(xiii) The skin of average adult body covers a surface area of approximately. (CO1)

(a) 2 m^2 (b) 200 m^2

(c) 200 cm^2 (d) 2 cm^2

(xiv) Subcutaneous Implants are type of (CO2)

(a) Depot Formulations (b) Conventional formulations

(c) Immediate release systems (d) Short acting systems

(xv) Transepidermal absorption occurs via (CO1)

(a) Stratum corneum (b) Sweat glands

(c) Hair follicles (d) Sebaceous glands

(xvi) Niosomes are vesicles made up of which kind of surfactant? (CO2)

(a) Non-ionic (b) Anionic

(c) Cationic (d) Amphiphilic

(xvii) Which of the following is a polymer precipitation technique used in the preparation of nanoparticles? (CO2)

(a) Salting out method

(b) Dispersion polymerization method

(c) Interfacial complexation method

(d) Chemical crosslinking method

(xviii) The theory used to measure the strength of Mucoadhesion is (CO1)

(a) Fracture theory (b) Electronic theory

(c) Diffusion theory (d) Adsorption theory

(xix) Which of the following is a bile salt-based penetration enhancer? (CO2)

(a) Sodium taurocholate (b) Dioctyl sulphosuccinate

(c) Dimethyl formamide (d) Azone

(xx) Coating individual particles or granules of drug with a slow dissolving material and compressed as tablets known as (CO1)

(a) Spacetabs (b) C-tab

(c) Spansule (d) All of the above

2. Short Answer. (Answer *seven*) 7×5

(a) Classify and describe with release mechanisms the various types of rate-programmed DDS. (CO1)

(b) State the advantages and disadvantages of targeted drug delivery. Explain in brief the role of monoclonal antibodies as targeted drug delivery system. (CO1)

(c) Define the term 'microencapsulation'. Explain the method of microencapsulation by coacervation-phase separation technique. (CO2)

(d) Discuss in brief about the theories of bioadhesion. State the advantages of mucosal drug delivery system. (CO1)

(e) State the various factors affecting transdermal permeation. Discuss the various formulation approaches in the design of TDDS in short. (CO2)

(f) Discuss in brief about the various types of GRDDS. State their advantages. (CO1)

(g) Classify ophthalmic inserts. Briefly discuss about the formulation components in the design of NODS. (CO2]

(h) Discuss in brief about the working principle of osmotic pump as implantable drug delivery system citing suitable example. (CO1]

(i) Write short notes on any *two* of the following : 2×3.5

(i) Formulation of inhalers (CO2)

(ii) Permeation enhancers. (CO1)

(iii) Ion-exchange drug delivery systems. (CO2)

3. Long answers. (Answer any *two*) 2×10

(a) Classify polymers and state the applications of polymers in the formulation of CRDDS. Explain in brief the mechanism of polymer degradation. (CO2)

6 + 4

(b) Classify the various types of nanoparticles. Distinguish between liposomes and niosomes. Classify the various types of liposomes based on their structure and size. (CO1)

5 + 2 + 3

(c) Explain in details about the hormonal and non-hormonal IUDs citing examples. Mention their advantages and disadvantages. (CO2)

6 + 4