Paper / Subject Code: 69324 / Noval Drug Delivery System

Final Year B Pharmacy
Sem - VII
16/12/2025

Duration: 3 Hours **Total marks: 75**

N.B.: 1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Draw neat, labelled diagrams wherever necessary.

Q. I. Multiple Choice Questions (Answer all of the following) **20**

1 Drugs with elimination half-life between ______ hours are good candidates for CR systems 1
a) 2 - 4
b) 12-14
c) 21-25
d) Less than 1

2 ______________ is a negative feature of a reservoir type of a controlled drug delivery dosage form. 1
a) A reservoir of the drug
b) Dose dumping
c) Diffusion of dissolved drug
d) A membrane surrounds them.

3 -----------------is a modified natural carbohydrate polymer prepared by the partial N deacetylation of the crustacean-derived natural biopolymer 1
a) Gelatin
b) Chitosan
c) Alginate
d) Dextran

4 Eudragit® is a popular brand name for which class of polymers? 1
a) Polymethacrylates
b) Cellulose derivatives
c) Gellan gum
d) Cellulose acetate butyrate

5 The following are the physical methods of microencapsulation, except 1
a) Multiorifice centrifugal process
b) Interfacial polymerisation
c) Air suspension technique
d) Spray Drying

6 High speed homogenisation and atomisation of feed into a stream of hot air is associated with ___ 1
a) Spray Drying
b) Spray congealing
c) Centrifugal extrusion
d) Multiorifice centrifugal technique

7 The theory used to measure the strength of mucoadhesion is 1
a) Adsorption theory
b) Electronic theory
c) Diffusion theory
d) Fracture theory

8 Which one of the following is described as the Buccal route? 1

a) The drug is placed between the tongue and the upper palate.
b) The drug is placed under the tongue.
c) A drug placed between the cheek and gum.
d) The drug is crushed and placed under the tongue.

9 A semipermeable membrane is an important component of 1

a) Mucoadhesive drug delivery system
b) Osmotic systems
c) Floating systems
d) Transdermal systems

10 How do hormone releasing IUDs act? 1

a) Making the uterus unsuitable for the fertilised egg to implant
b) Causing lysis of sperms.
c) Reducing the motility of sperms.
d) Prevent the release of the egg.

11 Which of these can be used as a penetration enhancer except 1

a) Croscarmellose sodium
b) Dioctyl sulphosuccinate
c) Sodium taurocholate
d) Dimethyl formamide.

12 An example of pressure sensitive adhesive employed in the formulation of transdermal patches is 1

a) Ethylene vinyl acetate
b) Hydroxypropyl methylcellulose
c) Polyurethane
d) Polyisobutylenes

13 Identify the approach that is not useful for increasing gastric retention time in a gastroretentive drug delivery system. 1

a) High density systems
b) Swelling system
c) Compressing systems
d) Effervescent systems

14 Identify which of the following drug candidates is suitable for a gastroretentive DDS? 1

a) Drugs that are absorbed primarily in the Intestine
b) A drug with a narrow absorption window in the stomach
c) A drug that requires colonic metabolism
d) Drugs that are degraded by the gastric fluid

15 A researcher developing a dry powder inhaler needs to determine the aerodynamic particle size distribution to predict lung deposition. Which analytical instrument should be selected? 1

a) Cascade impacter
b) Laser diffraction analyser
c) Optical microscopy
d) Coulter counter

16 In ________ mechanism of aerosol deposition, the greater the mass, particle mobility and initial velocity, the greater the chances of hitting the obstacle in front of them. 1

a) Sedimentation
b) Inertial impaction
c) Electrostatic precipitation
d) Diffusion

17 In liposomes, the hydrophilic heads are made up of 1

a) Triglycerides
b) Cholesterol
c) Choline
d) Fatty acids

18 Monoclonal antibodies are generated from 1

a) Single T cell clone
b) Multiple B-cell clones
c) Multiple T cell clones
d) Single B-cell clone

19 Ocular drug transport usually follows various pathways except 1

a) Bulk flow
b) Active transport
c) Facilitated transport
d) Passive diffusion

20 An ocular device containing hydroxypropycellulose is 1

a) SODI
b) Lacrisert
c) Ocusert
d) Minidisc

Q. II. Answer any TWO 20

a) Write approaches to control drug delivery systems and elaborate on dissolution-based approaches used in controlled drug release systems. 10

b) What is microencapsulation? Discuss the Multiorifice Centrifugation Process for microencapsulation. 10

c) List the types of ocular inserts and discuss erodible inserts as an ocular drug delivery system.

Q. III. Answer any SEVEN 35

a) Discuss the physicochemical properties for controlled delivery. 5

b) Write a note on Biodegradable polymers. 5

c) Explain the methods for the formulation of Buccal Drug Delivery systems 5

d) Write a brief note on excipients for nasal drug delivery 5

e) Elaborate on the design and working of the Alzet Osmotic Pump. 5

f) List approaches in transdermal drug delivery systems. Elaborate on any one in detail. 5

g) Enlist the approaches to modulate GI transit time and discuss the factors affecting the formulation of Gastroretentive drug delivery systems 5

h) List the methods for preparing nanoparticles and discuss in detail two of them. 5

i) Explain Insitu gelling systems for ocular delivery. 5