Question Paper

Exam Date & Time: 28-Nov-2023 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Novel Drug Delivery Systems [PCE-BP704T - S3]

Marks: 75 **Duration: 180 mins.**

I Multiple Choice Questions (MCQs)

Answer all the questions. Section Duration: 30 mins

1) The volatile liquids that gasifies at a certain temperature to inflate the chamber in the stomach are: (1)

- methanol, ether, and DMSO
- ether, and cyclopentane
- DMSO, isopropyl alcohol, and cyclopentane
- cyclohexane, and ether

2) The optimum stoichiometric ratio of citric acid and sodium bicarbonate for gas generation is reported to be (1)

- 0.76:1
- 0.46:2
- 0.71:1.5
- 0.55:1

3) Polycarbonate, cellulose acetate and methoxylated pectin are used in the formulation of: (1)

- micro balloons gastrointestinal delivery systems
- inflatable gastrointestinal delivery systems
- intragastric-osmotically controlled gastrointestinal drug delivery system
- floating gastrointestinal delivery systems

4) The polymeric excipients used for the preparation of high-density system includes: (1)

- polycarbophil
- ethyl cellulose
- sodium alginate
- acrylic polymer

5) Citroglycine in GRDDS is used as: (1)

- effervescent agent
- low density agent
- high density agent

release rate accelerant

6) Gellucires in GRDDS is used as: (1)

to decrease the hydrophilic property of the formulation
to increase the buoyancy
inert fatty materials
all the above.

7) Gel forming mucins are secreted by: (1)

cilia cells
mucociliary cells
goblet cells
epithelium cells

8) The most common polymeric material used for hydrodynamically balance systems is: (1)

HPMC
Sodium alginate
Sodium CMC
Gelatin

9) The cells responsible for the secretion of pepsin in the stomach- (1)

chief cells
mucous cells
G cells
parietal cells

10) The glass transition temperature of the polymeric matrix should favour: (1)

adequate drug diffusion and release.
adequate agonistic characteristics to the permeation enhancers.
crystalline property of the matrix formulation.
amorphous property of the matrix formulation.

11) Which of these is true for implantable drug delivery systems? (1)

Non-invasiveness
Peaks and troughs in plasma drug levels
Termination of therapy when required
No requirement of regulatory approval

12) HER2 receptor is _____ (1)

human endothelial growth factor receptor 2

human epidermal growth factor receptor 2
human epidermal residence factor receptor 2
human endothelial residence factor receptor 2

13) Who introduced the concept of 'magic bullet' which was a precursor to the development of targeted drug delivery systems? (1)

Paul Ehrlich
Edward Jenner
Elisha Otis
Matsumura and Maeda

14) Polyoxyethylene sorbitan monolaurate is commonly known as ____ (1)

Tween 80
Span 80
Tween 20
Span 20

15) Which of these is an enteric polymer? (1)

Polyethylene glycol monosuccinate
HPMC acetate succinate
hydroxypropyl ethyl methylcellulose
Polyethylene glycol monophthalate

16) GyneFix® is considered which generation of IUD? (1)

Fifth
Fourth
Third
Second

17) Implants are commonly used for which of the following? (1)

Oral drug delivery
Subcutaneous drug delivery
Oral and subcutaneous drug delivery
None of the above

18) Copper in IUDs causes (1)

amenorrhea
rheologic changes of cervical mucus
spermicidal effect
Endometrial atrophy

19) Polymethacrylate-based copolymers are commonly known by their brand name ____ (1)

Eudragits
Carbopols
Tweens
Spans

20) Reservoir type implants can be in the form of _____ (1)

capsules
Membrane
hollow fibers
all of the above

II Long Answers

Answer all the questions.

1) Explain different types of responsive drug delivery systems (10)

2) What is microencapsulation in drug delivery? Describe the methods of microencapsulation (10)

III Short Answers

Answer all the questions.

1) Discuss the Polymer Degradation and Erosion mechanism with examples. (5)

2) Discuss cornea, and sclera as a rate limiting barrier for ocular drug delivery. (5)

3) Discuss iontophoresis, and microneedle techniques to achieve ocular drug delivery. (5)

4) Explain thin film hydration in the preparation of liposomes (5)

5) Explain passive targeting of drugs using vesicular carrier systems (5)

6) Enlist five characterization parameters for niosomes and their respective analytical methods (5)

7) Describe IUDs based on their generation (5)

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