W-2022

Seat Number | | | | | | |

PANKH-14

BP 704 T
Novel Drug Delivery Systems
(747704)

Total Pages : 4]
Time: 3 Hours

Max. Marks : 75

Instructions to candidates:

1. Do not write anything on question paper except your seat number in the given box.
2. Graph or diagram should be drawn with the black ink pen being used for writing answers or black HB pencil only, wherever necessary or asked.
3. No additional supplements shall be provided.
4. All questions are compulsory.
5. Figures on the right indicates full marks.

Section-I

1. All questions are compulsory. 20×1=20

a) For pan coating of nonpareil sugar beads or pellets, particle size must be greater than-
   i. 500 µm
   ii. 600 µm
   iii. 700 µm
   iv. iv) 800 µm

b) Which of the following is a chemical method of microencapsulation?
   i. Spray-drying
   ii. Pan coating
   iii. Supercritical fluid technology
   iv. Emulsion-solvent evaporation

c) Which of the following type of formulation has reduced dose dumping potential?
   i. Sustained-release tablets
   ii. Controlled-release tablets
   iii. Enteric polymer coated capsules
   iv. Enteric microcapsules

d) Molecular weight cut-off for drug molecules for nasal administration is-
   i. 1000 Daltons
   ii. 200 Daltons
   iii. 600 Daltons
   iv. 400 Daltons

e) How much area of the human skin is occupied by the appendages?

i. 1 %
ii. 0.01 %
iii. 0.1 %
iv. 10 %

f) Occusert was developed by which of the following organization?

i. AstraZeneca
ii. Pfizer
iii. BioNtech
iv. Alza corporation

g) Which of the following type of drugs are poor candidates for oral sustained/controlled release formulation?

i. Drugs absorbed via active transport
ii. Drugs showing extensive distribution
iii. Drugs with unpredictable rate of metabolism
iv. All of the above

h) Which of the following is an example of synthetic permeation enhancer?

i. Fatty acids
ii. Amino acid esters
iii. Azone
iv. Water

i) Which of the following is **NOT** an application of microencapsulation technique?

i. Taste or odour masking
ii. Separation of incompatible materials
iii. Enhancement of dissolution
iv. None of the above

j) Which of the following technique is also known as Wurster's process?

i. Air suspension coating
ii. Spray-drying
iii. Hot-melt process
iv. Pan coating

k) Strong intermolecular interaction within a polymer structure leads to-

i. Low glass transition temperature values
ii. Good permeability below its glass transition temperature
iii. High glass transition temperature values
iv. Difficulty in processing of the polymer

l) Drugs limited by aqueous solubility at their site of absorption are-
   i. Good candidates for oral SR/CR formulations
   ii. Poor candidates for oral SR/CR formulations
   iii. Their site of absorption can be changed
   iv. None of the above

m) Cell present in stratum corneum are-
   i. Metabolically active
   ii. Metabolically inactive
   iii. Both, metabolically active and inactive
   iv. Having low density

n) Which of the following is an example of a biodegradable polymer-
   i. Ethylcellulose
   ii. Hydroxypropyl methylcellulose
   iii. Eudragit S 100
   iv. Polycaprolactone

o) Niosomes are made-up of-
   i. Proteins
   ii. Surfactants
   iii. Carbohydrates
   iv. Phospholipids

p) Surface area produced because of alveoli in the lungs is-
   i. 20- 30 m^2
   ii. 200-250 m^2
   iii. 70-80 m^2
   iv. 100-150 m^2

q) Hydrofluoroalkane are use as-
   i. Permeation enhancers
   ii. Modified release polymer
   iii. Propellants
   iv. Surfactants

r) Which of the following material would you use for developing a high-density dosage form?
   i. Titanium dioxide
   ii. Castor oil
   iii. Colloidal silica
   iv. Microcrystalline cellulose

s) Which of the following is **NOT** a theory of mucoadhesion in the GIT-

i. Wetting theory

ii. Mechanical theory

iii. Diffusion theory

iv. String theory

t) Transderm-nitro is an example of-

i. Polymer membrane permeation controlled drug delivery system

ii. Polymer matrix diffusion controlled drug delivery system

iii. Drug reservoir controlled drug delivery system

iv. Micro-reservoir controlled drug delivery system

2. Attempt **any two** of the following 20

a) Describe in detail biological properties of drug molecules affecting their selection for formulating into sustained/controlled release dosage form.

b) Write in detail about various techniques of microencapsulation.

c) Write advantages of pulmonary drug delivery systems. What are dry powder inhalers? How are they formulated? Add a note on a metering valve.

3. Solve **any seven** of the following 35

a) Write a note on methods of preparation of liposomes.

b) How does cornea acts as a barrier for permeation of drugs into the eyes? Write briefly about dosage forms used in ocular drug delivery.

c) Write advantages of intravaginal drug delivery. Add a note on hormone releasing IUDs.

d) Write various methods of preparation of polymeric nanoparticles.

e) Write any five approaches for designing gastroretentive drug delivery systems.

f) Write any five approaches for designing implantable drug delivery systems.

g) Describe various mechanisms by which permeation enhancer works in transdermal drug delivery systems.

h) Write advantages and applications of polymers in designing sustained/controlled drug delivery systems.

i) Briefly describe structure of human mucosa with neatly labelled diagram emphasize transmucosal permeability of drugs.