

Time: 3 Hrs

Marks: 75

Q. 1 Attempt all multiple-choice questions (MCQ)

20M

Sr No	Questions		Options
1	Selection of suitable_____allows targeting of drugs to diseased cells expressing glycans on the cell surface	a	folate
		b	transferrin
		c	lectins
		d	peptides
2	Which of the following is true about passive targeting	a	they do not target systemic circulation
		b	they utilize natural course of biodistribution
		c	they are delivered exclusively to the organ
		d	they are ligand mediated
3	Drugs with low therapeutic index are effective as targeted DDS because they can be used at	a	Low drug concentration
		b	High drug concentration
		c	Moderate drug concentration
		d	Variable drug concentration
4	Targeting drugs to specific organs is called as	a	Spatial placement
		b	Temporal delivery
		c	Temporal placement
		d	Spacious placement
5	Liposome structure has a _____ tail	a	hydrophilic
		b	hydrophobic
		c	amphiphilic
		d	amphipathic
6	All of the following are methods of preparation for nanoparticles except	a	Solvent evaporation method
		b	Emulsion polymerization
		c	Ethanol injection method
		d	Interfacial polymerization
7	_____ are vesicular drug delivery systems	a	Liposomes
		b	Nanoparticles
		c	Microspheres
		d	Nanospheres

8	Which of the following is a polysaccharide used as polymer to prepare nanoparticles	a	Gelatin
		b	Lectin
		c	Dextran
		d	Albumin
9	The following is the polymer of synthetic origin used for preparation of microspheres	a	Agarose
		b	Acrolein
		c	Collagen
		d	Carrageenan
10	The following method of preparation is used in the preparation of niosomes	a	Double emulsion technique
		b	Interfacial polymerization
		c	Hand shaking method
		d	Phase separation coacervation technique
11	Epitope is a _____	a	part of antigen that is recognized by the antibody
		b	area in the antibody which binds to antigen
		c	complex formed by binding of antibody to antigen
		d	variable region on the antibody
12	The following antibodies are the most immunogenic in humans and have tendency to elicit a maximum human antimouse antibody (HAMA) response	a	Murine antibodies
		b	Chimeric antibodies
		c	Humanized antibodies
		d	Human antibodies
13	The following factors are governed by Aerosol design except	a	Airway calibre
		b	Droplet size
		c	Shape
		d	Velocity
14	The _____ mechanism can improve the deposition of highly charged aerosols	a	Interception
		b	Electrostatic precipitation
		c	Sedimentation
		d	Diffusion

15	_____ employs a multidose reservoir of drug wherein dose is metered into small conical cavities by twisting a grip at the base of the device and on inhalation air is ducted through cavity and dose is dislodged	a	Turbuhaler
		b	Spinhaler
		c	Rotahaler
		d	Easyhaler
16	Lung is an attractive organ to administer proteins and peptides because of	a	high enzymatic activity
		b	invasive administration by inhalation
		c	extensive vasculature and thin alveolar epithelium
		d	low permeability
17	Gene expression involves	a	Only Transcription
		b	Only Translation
		c	Only Splicing
		d	Transcription and Translation
18	Introducing healthy genes into cells cultured <i>in vitro</i> and reimplanting into the patient is referred to as	a	<i>ex vivo</i> therapy
		b	germ line therapy
		c	somatic cell therapy
		d	<i>in vivo</i> therapy
19	Antisense technology interrupts the ___ phase of protein production	a	Transcription
		b	Splicing
		c	Folding
		d	Translation
20	The SELEX technology used to obtain Aptamers stands for	a	Systematic evolution of ligands by exponential enrichment
		b	Secondary evaluation of ligands by exploratory evolution

		c	Systematic enrichment of ligands by exponential evaluation
		d	Secondary evolution of ligands by exploratory enrichment

Q.2: Attempt any two out of three (20 M)

- i) Enlist advantages of targeted drug delivery and explain in brief lymphatic uptake of drug molecules. 10M
- ii) a What are Liposomes. Discuss any four methods for the evaluation of liposomes. 5M
- b Elaborate on the polymers used to manufacture nanoparticles. 5M
- iii) a List out the evaluation parameters for microspheres and discuss in detail any one evaluation parameter. 5M
- b List out the method of preparation of microspheres and explain in detail any one based on emulsion technique. 5M

Q.3: Attempt any seven out of nine (35 M)

- i) Write in brief with examples on the levels of drug targeting. 5M
- ii) Discuss the advantages, disadvantages and applications of Nanoparticles. 5M
- iii) Elaborate on the method of preparation of microspheres based on spray drying and spray congealing technique. 5M
- iv) Describe any two applications of niosomes in drug delivery. 5M
- v) Give a detailed account of metered dose inhalers. 5M
- vi) Summarize salient features of any three *in vivo* nasal absorption models and give any one general limitation of these models. 5M
- vii) Write in brief on the *ex vivo* gene therapy approach. 5M
- viii) Explain any two viral vectors used for gene therapy. 5M
- ix) Explain the concept and any two applications of antisense therapy. 5M
