

BIOPHARMACEUTICALS

Maximum: 75 Marks

$$(10 \times 1 = 10)$$

Module No.	Question No.	Question	K Level	CO
1	1	Which statement best describes a generic drug of the following? i) A drug with new chemical entity ii) A drug with same active ingredient as a branded drug iii) A drug produced only from plants iv) A drug with higher price than branded drug	K1	CO1
	2	Why biosimilars are more complex than generic drugs? i) Chemically synthesized drugs ii) Copies of simple molecules iii) Produced using live cells and are structurally complex iv) Cheaper than all drugs	K2	CO1
2	3	Identify the enzyme system mainly responsible for drug metabolism. i) Amylase ii) Cytochrome P450 iii) Pepsin iv) DNA Polymerase	K1	CO2
	4	Differentiate drug tolerance and tachyphylaxis. i) Occurs immediately after first dose ii) Tolerance develops slowly; tachyphylaxis develops rapidly iii) Tachyphylaxis occurs only in children iv) Tachyphylaxis occurs only with antibiotics	K2	CO2
3	5	Recall the main purpose of quality control. i) Prevent errors in manufacturing process ii) Detect errors in finished products iii) Promote drug marketing iv) Increase drug price	K1	CO3
	6	Why validation studies are important in biotechnology? i) To reduce production cost only ii) To ensure consistency, safety and reproducibility iii) To avoid documentation iv) To eliminate clinical trials	K2	CO3
4	7	Identify the biosafety level required for highly dangerous pathogens. i) BSL – 1 ii) BSL – 2 iii) BSL – 3 I v) BSL – 4	K1	CO4
5	8	Select the perfect purpose of bioethics in drug development. i) To ensure profit ii) To ensure ethical treatment of research subjects iii) To speed up drug approval iv) To avoid regulatory guidelines	K2	CO4
	9	Identify the plant derived anticancer drug from the following. i) Insulin ii) Interferon iii) Vincristine iv) Growth Hormone	K1	CO5
	10	Why interferons are used in antiviral and anticancer therapy? i) Kill the bacteria in the bloodstream ii) Stimulate immune response and inhibit viral replication iii) Increase blood clotting activity iv) Function as digestive enzymes	K2	CO5

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Develop an essay on routes of drug administration.	K3	CO1
	(OR)			
	11.b.	Make use of biosimilars with an example.		
2	12.a.	Plan and write about adverse response to drugs.	K3	CO2
	(OR)			
	12.b.	Utilize the importance of ion channel for drug targets.		
3	13.a.	Contrast about the Quality Assurance and Quality Control.	K4	CO3
	(OR)			
	13.b.	Examine the role of cell lines in validation of drugs.		
4	14.a.	Simplify the drug designing process.	K4	CO4
	(OR)			
	14.b.	Analyze the principles of bioethics in biopharma industries.		
5	15.a.	Criticize the pharmaceutical products of animal origin.	K5	CO5
	(OR)			
	15.b.	Justify the role of cytokines and interferons in cancer therapy.		

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Distinguish the development phases and drug manufacturing process.	K4	CO1
2	17	Contrast the factors modifying the drug action and effect of drugs.	K4	CO2
3	18	Discover about GLP alongwith its significance.	K4	CO3
4	19	Criticize the analytical methods of protein formulation.	K5	CO4
5	20	Interpret Insulin production through various sources and its importance.	K5	CO5

Z-Z-Z

END