For Paper Students	3 Hours	Total Marks: 75
For Research Students	3 Hours	Total Marks: 100

<b>N.B.</b> (1) All Questions are compulsory.	
(2) For <b>Paper students</b> each question carries 15 marks.	
(3) For <b>Research students</b> , each question carries 20 marks.	
Q.1 (a) Discuss the following (any One)	7 /10
i) Justify that Quality Assurance plays an important role in production of ste	erile
products in Pharmaceuticals	
ii) Discuss in brief the importance of validation of processes in pharmaceutic	al
industry.	
(b) Comment on the following (any One)	8/10
i) The importance of GLP in Laboratory testing.	
ii) Basic principles of quality assurance of vaccines.	
Q.2 (a) Answer the following (any one)	7/10
i) Give an account of the role of index organisms in water analysis,	
ii) What are the spoilage organisms in meat? How would you enumerate them	19
(b) Answer the following (any one)	8/10
i) Describe the methods of pasteurization of milk. How would you test the ef	
of pasteurization?	ficacy.
ii) Write a short note on Antibiotic assays	
Q.3 (a) Answer the following (any one )	7/10
i) Give an account of emerging techniques of food preservation	//10
ii). How do microbes survive in adverse pH environment?	8/10
(b) Discuss the following (any one )	0/10
i). The role of pigments and surfactants in increasing the survival capacity of	
microbes in processed food.	1.
ii) Discuss the different protocols to study the presence of <i>Vibrio</i> species in fis	'n
sample.	
	= /10
Q. 4.(a) Attempt the following (any one )	7/10
i) What is the role of FDA in Quality Assurance?	
ii) How do the ISO series of standards help in quality management?	0.44.0
(b) Attempt the following (any one )	8/10
i) Quality audits play an important role in accreditation process. Justify.	
ii) Discuss the approaches to HACCP Certification	
Q. 5 (a) Write short notes on the following (any three)	12/15
i. Significance of membrane filtration technique in water analysis.	
ii. Sterility testing of water to be used for injectibles.	
iii. Methods to sterilize air in a "clean room".	
iv. Water borne pathogens.	
v. Method of coliform count in salad sample.	
vi. Quality circles	
(b) Answer (any one)	3/5
i) Give principle underlying Dye reduction tests.	
ii) Write a note on pigment production as survival strategy of microbes in adve	erse
Environment.	