

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII (NEW) - EXAMINATION – SUMMER 2018****Subject Code: 2183610****Date: 02/05/2018****Subject Name: Nanoscience Technology and Pharmaceutical Packaging Technology (Department Elective – X)****Time: 10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		<b>MARKS</b>
<b>Q.1</b>	(a) Give applications of nanotechnology in pharmaceutical field	<b>03</b>
	(b) Give an account on functions of Packaging Materials	<b>04</b>
	(c) What are gold nanoparticles. Give its applications in detail	<b>07</b>
<b>Q.2</b>	(a) What are the new trends in the Pharmaceutical packaging	<b>03</b>
	(b) How packaging stability studies are undertaken.	<b>04</b>
	(c) Classify glass and write a note on glass as a packaging material.	<b>07</b>
<b>OR</b>		
	(c) Explain in detail “Top down and Bottom up technology” for nanoparticle generation	<b>07</b>
<b>Q.3</b>	(a) Define Dendrimers and give its applications	<b>03</b>
	(b) Explain the zeta potential and particle size determination for nanoparticles	<b>04</b>
	(c) What are micelles? Give its advantages and applications in the pharmaceutical drug delivery in detail.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Differentiate between nanoparticles & micro particles.	<b>03</b>
	(b) Write a note on mechanical similarity of nanoformulation development.	<b>04</b>
	(c) Explain spray drying method with neat labeled diagram for nanoparticles formulation	<b>07</b>
<b>Q.4</b>	(a) Mention the steps involved in flow of sterility test of packaging materials.	<b>03</b>
	(b) Describe Adhesive materials used in packaging technology	<b>04</b>
	(c) What are the different materials used in blister packaging? Explain the strip Packaging process.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Write a note on metal as packing material.	<b>03</b>
	(b) Define sterilization of packaging materials. What are the physical and chemical factors affecting the sterilization?	<b>04</b>
	(c) Write an account on quality control tests for glass containers	<b>07</b>
<b>Q.5</b>	(a) What are the different culture media used in the sterility test of packaging materials?	<b>03</b>
	(b) Explain briefly the microbial destruction process in sterilization of packaging materials.	<b>04</b>
	(c) Classify the Packaging materials and give brief description on any two of the packaging materials?	<b>07</b>



**OR**

- Q.5**
- (a) Define solid lipid nanoparticles & polymeric nanoparticles **03**
  - (b) Write a note on the transportation test for secondary packaging materials **04**
  - (c) Describe in detail about the quality control tests used to characterize nanoparticles **07**

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