Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– V (New) EXAMINATION – WINTER 2019

Subject Code: 2153905 Date: 29/11/2019

Subject Name: Nanotechnology and Environment

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.**

			MARKS
Q.1	**(a)**	What is risk?	**03**
	(b)	Explain : Pulmonary effects of CNTs	**04**
	(c)	Write down specific applications of nanotechnology that beneficial for environment.	**07**
Q.2	**(a)**	What do you mean by Human Health Hazards?	**03**
	(b)	Explain Inhalation nanoparticles?	**04**
	(c)	In the risk assessment process, explain exposure assessment.	**07**
		OR	
	(c)	Write a short note on Dose-Response Assessment.	**07**
Q.3	**(a)**	Define: Photo catalyst	**03**
	(b)	Explain MSF and MED process for water desalination	**04**
	(c)	Write a shot note on working of TiO_2 as semiconductor photo catalyst.	**07**
		OR	
Q.3	**(a)**	What is aquaporin membrane?	**03**
	(b)	Write a note on Hazards caused by prolonged exposure to arsenic contaminated soil and water.	**04**
	(c)	Explain: organic-inorganic membranes	**07**
Q.4	**(a)**	List out type of membranes in the vicinity of size.	**03**
	(b)	What do mean by arsenic contamination?	**04**
	(c)	Explain: desalination of sea water.	**07**
		OR	
Q.4	**(a)**	Write note on WHO guidelines for allowed Arsenic content in drinking water.	**03**
	(b)	Explain role of nanoparticles for water treatment.	**04**
	(c)	Explain role of various factors which affect the photo catalytic process.	**07**
Q.5	**(a)**	Write down simple oxidation and reduction process involved in the treatment of Arsenic.	**03**
	(b)	Give your idea about Arsenic treatment using nanoparticles other than TiO_2.	**04**
	(c)	Write short note on biologically inspired membranes in the vicinity of nanotechnology.	**07**
		OR	
Q.5	**(a)**	What do you mean by solar disinfection process?	**03**
	(b)	Explain removal of arsenic using nanostructured TiO_2.	**04**
	(c)	Write a note on nanostructured ceramic membrane for waste water treatment.	**07**

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