Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2723013 **Date: 31/05/2016**

Subject Name: Process Safety Management

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.**

Q.1	**(a)**	Explain estimation of worker exposure to the toxic vapors.	**07**
	(b)	Safety rules & regulations for transportation, storage and handling of hazardous materials.	**07**
Q.2	**(a)**	Explain Fault Tree analysis method of hazard analysis.	**07**
	(b)	What are toxic release and dispersion models? What are three steps involved in these models? What are the different parameters which affects the dispersion of a toxic vapour?	**07**
		OR	
	(b)	Explain in detail HAZOP procedure and all guidewords for hazard analysis.	**07**
Q.3	**(a)**	What is toxicology? What are the essential elements of any toxicology study?	**07**
	(b)	What are the three phases involved in any industrial hygiene project? Explain each briefly.	**07**
		OR	
Q.3	**(a)**	Explain what if and check list method for hazard analysis.	**07**
	(b)	Define: a) Risk b) Safety c) Hazard. What are the essential features of any safety program?	**07**
Q.4	**(a)**	What is importance of Training and employee participation elements of process safety management? Explain with example.	**07**
	(b)	Explain automatic and manual interlock system in industries.	**07**
		OR	
Q.4	**(a)**	Explain : streaming current, Inerting, Flammability diagram.	**07**
	(b)	Explain the significance of safe startup and safe shutdown of industrial equipment.	**07**
Q.5	**(a)**	Write the lesson learned from the case studies of design failure.	**07**
	(b)	Explain Hot work permit and accident investigation elements of process safety management.	**07**
		OR	
Q.5	**(a)**	What is Ventilation? Explain positive ventilation and negative ventilation with diagram.	**07**
	(b)	Write short note on risk management and mitigation.	**07**

****