

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI • EXAMINATION – WINTER 2013

Subject Code: 160504**Date: 06-12-2013****Subject Name: Pollution Control and Safety Management****Time: 02:30 pm to 05:00 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) Discuss Carbon cycle in Nature. **07**
(b) What are Biotic and Abiotic components of Ecosystem? Explain in detail their interrelationship **07**

- Q.2** (a) Discuss equipments used to arrest the particulate matters from the effluent gas. **07**
(b) What are the common Gaseous effluents emitted from Power plant, Refineries and Other Chemical Process industries? What are its impact on Human, Vegetation and Environment? Explain. **07**

OR

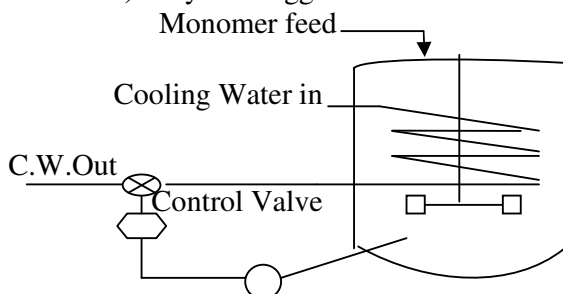
- (b) Discuss disposal of Solid wastes from Chemical Process Industry. **07**

- Q.3** (a) What is Environment Audit? List the documents to be checked while performing 'Environment Audit' of a chemical unit. How Environment Audit is performed. **07**
(b) Write Short note on Factory Act. **07**

OR

- Q.3** (a) What is Environment Impact Assessment? What are the factors mitigated while doing EIA. **07**
(b) List various methods of Identifying Hazards. Write in detail about Hazard Survey. **07**

- Q.4** (a) Shown below is the Reactor to carry out Exothermic reaction. Cooling is provided by Water in coil. Water circulates through cooling tower by a common centrifugal pump and water in cooling tower is cooled by counter current of Air. Air flow in cooling tower is by induced draft. Failure in adequate cooling will lead to rise in temperature followed by increase in pressure and eventually in Explosion. Perform HAZOP (on C.W. line) study and suggest additional instrumentation with PI diagram **14**



OR

- Q.4** (a) What is Fire Triangle? Discuss Inerting as a method of preventing Fire. **07**
Q.4 (b) Discuss Fault Tree Analysis as a tool for identifying Hazard. **07**

- Q.5** (a) What is Off –site and On-site emergency planning? Discuss emergency planning for Chemical Process Industry. **07**
(b) Discuss Dispersion model as a tool for Emergency planning. **07**

OR

- Q.5** (a) With the help of diagram explain construction and working of Safety devices used for high pressure process vessel/ storage tank. **07**
(b) What are essential components of Emergency planning for transporting of chemicals? Discuss. **07**
