Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VI SEMESTER B.TECH (CHEMICAL ENGINEERING)

END SEMESTER EXAMINATIONS, JUNE/JULY 2016

SUBJECT: POLLUTION CONTROL AND SAFETY [CHE 304]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 100

Instructions to Candidates:

- Answer **ANY FIVE FULL** the questions.
- Missing data may be suitable assumed.

1A.	What do you understand by the term ecosystem? What are the different types of ecosystem? Explain with a neat sketch, the dynamics of Pond as an operating ecosystem.	**10**
1B.	"Prevention is better than cure". Elaborate on this as applied to industrial pollution control.	**10**
2A.	Explain the significances of estimation of BOD, COD and TOC in industrial waste water.	**15**
2B.	Compare trickling bed filter with activated sludge process.	**05**
3A.	What are the different methods available for control of NO_x. Explain any two methods in detail.	**10**
3B.	Explain any two methods for the estimations for the estimation of SO_X in ambient air.	**10**
4A.	With sketches, explain plume classes under different stability conditions.	**10**
4B.	Explain with a neat sketch, the principle and working of a Howard settling chamber. Derive an equation for the collection efficiency assuming laminar flow conditions.	**10**
5A.	Explain briefly on housekeeping for safety in a process industry.	**05**
5B.	Differentiate between risk and hazard.	**05**
5C.	What are the characteristics of effluents generated from a nitrogenous fertilizer plant? Explain the methods of control and abatement of pollution in this plant.	**10**
6.	Explain briefly on the following	
A.	Nitrogen cycle	**5**
B.	Sludge treatment and disposal.	**5**
C.	Indian pollution prevention and control legislation.	**5**
D.	Inversion.	**5**