UNIVERSITY OF TECHNOLOGY

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<i>Name</i> :	
Roll No.:	Commence of Executing 2nd Explains
Invigilator's Signature :	

CS/B.TECH/CHE(N)/SEM-3/CH(CHE)-301/2012-13 2012

BASIC ENVIRONMENTAL ENGINEERING & ELEMENTARY BIOLOGY

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any ten of the following:

 $10 \times 1 = 10$

- i) Acid rain is caused by oxides of
 - a) SO $_2$

b) NO₂

c) CO₂

d) (a) & (b) both.

- ii) CFC is
 - a) Chlorofluorocarbon
 - b) Centre for fuel control
 - c) Carcinogenic fluoride compound
 - d) Carcinogenic fuel chemical.

3113(N) [Turn over

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- iii) Montreal Protocol signed in September1987, aims a the control of
 - a) Use of greenhouse gases
 - b) Use of chemical pesticides
 - c) Use of ozone depleting substance
 - d) Use of carbon dioxide gases.
- iv) Converting solid waste into new products by using resources contained in the discarded material is
 - a) Waste management
 - b) Reuse
 - c) Recycling
 - d) Hazardous waste management.
- v) EI Nino is a Spanish word which means
 - a) Climate change
- b) Earth's rotation
- c) Little boy
- d) Extremely hazardous.
- vi) According to United Nations the World Environment Day 2012 is dedicated to
 - a) Water Management
- b) Forests
- c) Green Economy
- d) Bio-diversity.
- vii) Haemoglobin is a protein.
 - a) Catalytic
- b) Protective
- c) Regulatory
- d) Transport.
- viii) The size of RSPM is
 - a) 10 µ

b) 20 μ

c) 100 µ

- d) $< or = 10 \mu$.
- ix) Glycolysis is a process.
 - a) Catabolic
- b) Anabolic
- c) Regulatory
- d) Transport.

3113(N)

CS/B.TECH/CHE(N)/SEM-3/CH(CHE)-30 Photochemical smog gives rise to CO_{2} CO **PAN** c) d) PM-2. Glycogen is a Monosaccharide a) b) Lipid

xi)

X)

- Polysaccharide c)
- Protein. d)
- xii) The safe intensity level of sound is
 - 85 decibel a)
- 75 decibel b)
- 65 decibel c)
- d) 55 decibel.

GROUP - B

(Short Answer Type Questions)

Answer any three of the following. $3 \times 5 = 15$

- 2. Write a brief note on Hydrological cycle.
- 3. What is Cemical Oxygen Demand (COD) ? COD measurement is more scientific than BOD test - explain. Why in the BOD experiment the final DO measurement should not be done after a very long time? 1 + 2 + 2
- What is global warming? Analyse the causes and comment 4. on the proposed remedial steps.
- 5. a) Distinguish between renewable and non-renewable sources of energy.
 - What do you understand by ecological balance?
- A chemical engineering industry has retained you as a 6. consultant for conducting EIA. Plase prepare the basic activity chart for this operation.

GROUP - C

(Long Answer Type Questions)

Answer any three of the following. $3 \times 15 = 45$

- 7. Sketch the Disaster Management Cycle and explain its a) different aspects.
 - b) Enumerate four methodologies / aspects of utilization of 8 + 7Renewable Energy.

3113(N) 3 [Turn over

CS/	B.TE	CCH/CHE(N)/SEM-3/CH(CHE)-301/2012-13
8.	a)	State Darcy's law.
	b)	What are the probable cause of water pollution be arsenic?
	c)	What remedial measures may be taken to control arsenic pollution?
	d)	What do you mean by water softening. What are the different methods of water softening? $2 + 2$
	e)	The dilution factor P for an unseeded mixture of wastes and water is 0.030. The DO of the mixture was initially 9.0 mg/land after 5 days it has dropped to 3.0 mg/l. The reaction rate constant is 0.22/day. Calculate i) The 5 day BOD of the wastes ii) Co
		iii) The remaining oxygen demand after $5\ days.$ 4
9.	a)	Define noise pollution. 1
	b)	Discuss its various sources. 2
	c)	Suggest two methods of controlling the noise pollution. 2
	d)	What is the noise threshold limit value?
	e)	Calculate the intensity of 50 dB sounds. (given reference intensity - 10 $^{-\ 12}\ Wm^{\ -\ 2}$).
	f)	What is the composition of lithosphere?
	g)	What are the different types of solid wastes? 2
10.	Discuss the methodology of Collection and transfer of Solid Waste practiced in the urban city of India. State how incinerator is helpful in solving solid waste management problem in a crowded city. What is e -Waste? $5 + 5 + 5$	
11.	Writ	e brief notes on any <i>three</i> of the following: $3 \times 5 = 15$
	a)	Cyclone separator
	b)	Ventury Scrubber
	c)	Hydraulic gradient
	d)	Trickling filter
	e)	Hzardous waste management.

4

3113(N)