53 (ES 101) ENEN

2014

ENVIRONMENTAL AND SAFETY ENGINEERING

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer ***Question No. 1*** *and* ***any four*** *from the rest.*

1. *(a)* Write short notes on : ***(any six)*** 6×3=18

   (i) Nitrogen Cycle

   (ii) Transboundary pollution

   (iii) Montreal Protocol

   (iv) Trophic level

   (v) Thermal belt

   (vi) Land fill

   (vii) Bag House.

(b) What is a thermocline ? 2

2. (a) What are the roles of individual in conservation of natural resources and sustainability ? 4+4=8

(b) What are major components of an ecosystem ? Discuss about the structural and functional components of an ecosystem. 2+10=12

3. (a) How will you justify that earth is an open system ? Explain the concept of ecological balance and its consequence of change. 2+8=10

(b) What is radiation heat transfer ? Describe the system of earth's energy balance. 2+8=10

4. (a) Discuss the meaning of inversion. How the life cycle of certain animal species are influenced by green house effect ? 4+4=8

(b) What are ozone depleting compounds ? Discuss the process of ozone layer depletion in stratosphere. How stratospheric ozone is different from ground level ozone ?
3+6+3=12

5. (a) Define criteria pollutant. What are the differences in between primary and secondary pollutant ? Explain *any one* secondary air pollutant in details.
2+2+4=8

(b) Mention some natural water pollutant sources. Name a few diseases causing organisms present in water. 2+3=5

(c) What are the different parameters used in measuring water quality ? Why higher BOD in water may result in the death of aquatic organisms ? 4+3=7

6. (a) Describe cultural eutrophication. How use of pesticides can pose a threat to animals and human beings ? 4+6=10

(b) Discuss in details *any two* water treatment systems. How will you remove hardness from water ? 5+5=10

7. *(a)* What are hazardous solid wastes ? How does it differ from MSW ? Explain with examples. 3+2+2=7

(b) Discuss *any two* methods for organic waste treatment. 2+2=4

(c) How is noise pollution measured ? What problems does noise pollution cause for animals ? What can you do at your level to reduce noise pollution ? 1+4+4=9