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Total Number of Pages : 01

B.Tech.  
HSSM3303

**6<sup>th</sup> Semester Back Examination 2017-18**  
**ENVIRONMENTAL ENGINEERING AND SAFETY**  
**BRANCH : AEIE, AERO, AUTO, BIOMED, BIOTECH,**  
**CHEM, CIVIL, ECE, EEE, EIE, ELECTRICAL, ETC, IEE, MINERAL, MINING**

**Time : 3 Hours**

**Max Marks : 70**

**Q.CODE : C409**

**Answer Question No.1 which is compulsory and any five from the rest.**  
**The figures in the right hand margin indicate marks.**

- Q1** Answer the following questions : (2 x 10)
- a) Define biosphere.
  - b) Define the hardness of water.
  - c) How does plain sedimentation differ from sedimentation aided with coagulation?
  - d) Give the name of two noncriteria air pollutants.
  - e) What is the unit of measurement of noise?
  - f) Name two accidents that can occur in a petroleum refinery.
  - g) Give the composition of municipal solid waste.
  - h) Give the relationship between ultimate BOD and COD of wastewater.
  - i) Give the mechanism of anaerobic digestion.
  - j) What is an energy pyramid?
- Q2**
- a) Define environment, ecology and ecosystem. Discuss about the component of ecosystem. (5)
  - b) Define a food chain. Give a brief account of different type of food chain with a neat sketch. Discuss about food web. (5)
- Q3**
- a) Briefly discuss about environmental gradient and tolerance level with a neat sketch. (5)
  - b) What are biogeochemical cycles? Discuss about nitrogen cycle with a neat sketch. (5)
- Q4**
- a) Briefly discuss about the sources of noise pollution. (5)
  - b) Give a brief account of the effects of noise pollution on human health. (5)
- Q5**
- a) Briefly describe about the gross chemical properties of water. (5)
  - b) A wastewater sample contains 100 mg/L ethylene glycol (C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>) and 120 mg/L phenol (C<sub>6</sub>H<sub>6</sub>O). Determine the COD and TOC. (5)
- Q6**
- a) Briefly discuss about global warming. How is greenhouse effect related to it? (5)
  - b) Give an idea about the cause and effect of acid rain. (5)
- Q7** Briefly discuss about the criteria air pollutants with their ambient standards. Give brief discussion on air pollution meteorology. (10)
- Q8** Write short answer on any TWO : (5 x 2)
- a) Nitrification and denitrification reaction.
  - b) Activated sludge process
  - c) Solid waste management
  - d) Personal safety equipment