

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 86**  
**(For candidates admitted from the academic year 2004–05 & thereafter)**

**SUBJECT CODE : CH/PS/IM44**

**M.Sc. DEGREE EXAMINATION APRIL 2007**  
**BRANCH IV – CHEMISTRY**  
**FOURTH SEMESTER**

**REG.NO .....**

**COURSE : SPECIALISATION**

**PAPER : INDUSTRIAL WASTE MANAGEMENT**

**TIME : 30 MINS**

**MAX. MARKS :20**

**SECTION – A**

**TO BE ANSWERED ON THE QUESTION PAPER ITSELF.**

**Answer all the questions.**

**I CHOOSE THE CORRECT ANSWER:**

**(20 x 1= 20)**

- The global warming potentials of green house gases increase in the order  
a)  $\text{CO}_2 > \text{O}_3 > \text{CH}_4 > \text{N}_2\text{O}$                       b)  $\text{CO}_2 > \text{CH}_4 > \text{O}_3 > \text{N}_2\text{O}$   
c)  $\text{O}_3 > \text{N}_2\text{O} > \text{CH}_4 > \text{CO}_2$                       d)  $\text{O}_3 > \text{CH}_4 > \text{CO}_2 > \text{N}_2\text{O}$
- An example of organic particulate matter is  
a) chrysene      b) ethene              c) alcohol      d) propene
- The least harmful form of asbestos is  
a) Tremclite      b) Amosite              c) Crocidolite              d) Chrysolite
- The common coagulant used in wastewater treatment is  
a) Alum              b) soda              c) lye              d) ura
- Cyanide containing effluent is released by  
a) Food industries                      b) Electroplating industry  
c) Distillaries                              d) Dairy industries
- Earthworm farming is also known as  
a) anaerobic digestion                      b) stabilisation  
c) vermiculture                              d) aquaculture
- In India, the percentage of land under forest is about  
a) 20%              b) 19%              c) 25%              d) 30%]
- Within community diversity is called  
a) ecosystem      b) Island              c)  $\alpha$  diversity              d)  $\beta$  diversity
- NWDB is  
a) North West Development Board                      b) National Water Desalination Board  
c) New Water Data Base                                      d) National Wasteland Development Board
- Ozone day is observed on  
a) January 30      b) April 21              c) September 16              d) October 16

**II FILL IN THE BLANKS:**

- 11. Minimata disease is caused due to biomagnification of \_\_\_\_\_.
- 12. Dissolved organic carbon is removed during \_\_\_\_\_ treatment.
- 13. Reverse osmosis removes \_\_\_\_\_ from wastewater.
- 14. Encapsulation is used to remove \_\_\_\_\_ waster.
- 15. The management of rainfall and resultant runoff is called \_\_\_\_\_.

**III ANSWER IN ONE OR TWO SENTENCES:**

- 16. What are the two types of air pollutants?
- 17. What is meant by 'nano filtration'?
- 18. How is sludge disposed of ?
- 19. What is sustainable development ?
- 20. When did the Environment protection Act come into force?



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**TIME : 2 HOURS & 30 MINS** **MAX. MARKS :80**

**SECTION – B**

**Answer any five questions.**

**(5x8=40)**

1. How are particulates removed by  
a) Electrostatic filters and                      b) wet scrubbers                      (4+4)
2. Explain the methods of control for  
a) Green house gases                      b) Asbestos
3. Write a brief note on Rain Water Harvesting.
4. Explain the characteristics and treatment methods for the effluent from paper and pulp industries.                      (3+5)
5. Discuss the role of trickling filters and oxidation ditches in the secondary treatment.                      (4+4)
6. How are nuclear wastes classified? Explain the nuclear waste disposal methods.                      (8)
7. Describe the four steps involved in Risk Assessments.                      (4x2=8)

**SECTION – C**

**Answer any two questions.**

**(2x20=40)**

8. a) What are the problems associated with urbanisation? How can sustainable development be achieved?                      (10)  
b) What is photochemical smog? Write the chemicals and chemical reactions involved in this process.                      (10)
9. a) Write a note on primary treatment of wastewater.                      (10)  
b) Explain the characteristics of effluents from electroplating industries. How is such an effluent treated?
10. a) Write notes on i) desalination and                      ii) electro dialysis  
b) How are solid wastes disposed by  
i) Landfill method and                      ii) solidification and stabilisation method ?                      (5+5)



