STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.

(For candidates admitted during the academic year 2006-07 & 2007-08)

SUBJECT CODE : CH/PS/EC34

M.Sc. DEGREE EXAMINATION NOVEMBER 2008
BRANCH IV - CHEMISTRY
THIRD SEMESTER

REG. NO. _____

COURSE : SPECIALISATION
PAPER : ENVIRONMENTAL CHEMISTRY
TIME : 30 MINUTES **MAX. MARKS : 20**

SECTION - A

ANSWER ALL QUESTIONS: **(20 x 1 = 20)**

I Choose the correct answer:

1. Which of the following compounds should be the most effective "Greenhouse Gas"?
   a) CO_2 b) H_2O c) CF_4 d) N_2

2. Chrysene is a
   a) pesticide b) alkene c) PAH d) ODS

3. Ouch ouch disease is caused by
   a) Hg b) CO c) As d) Cd

4. An example of secondary mineral in soil is
   a) SiO_2 b) Mg^{2+} c) mica d) aluminosilicate

5. Air pollution standard index rates the criteria of pollutants into numbers ranging from
   a) 0 to 500 b) 0 to 100 c) 1 to 99 d) 50 to 100

6. According to BIS, pH of drinking water should be between
   a) 8-10 b) 4-6 c) 7-8 d) 6.5 to 8.5

7. The size of grab sampling of water is
   a) 2 to 4 litres b) 1 to 2 litres c) 1 to 3 litres d) 3 to 4 litres

8. Among the following, which is not a hazardous solid waste?
   a) chemicals b) inflammable wastes c) explosives d) crop residue

9. The chemicals responsible for Bhopal tragedy is
   a) methyl isocyanate b) ethyl isocyanate c) DDT d) methyl cyanate

10. Lower limit of exposure to a toxicant is termed as
    a) genetic tolerance b) hypersensitivity
    c) threshold effect d) irreversible effect

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II Fill in the blanks:

11. Water in a standing quiescent body is called _____ habitat.
12. Radon is an example of _____ pollutant.
13. Nessler's method is used to determine _____ in water.
14. Raw sewage is considered as _____ demanding waste.
15. If more than 15% of the cation exchange capacity of soil is occupied by sodium, the soil is called _____.

III Answer the following in one or two lines:

16. Name any four factors that influence weather.

17. How does photochemical smog lead to bronzing of leaves?

18. What is "Tsunami"?

19. Mention the cations responsible for hardness of water.

20. What are the two long-lived radioactive nuclides in soil?

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COURSE : SPECIALISATION
PAPER : ENVIRONMENTAL CHEMISTRY
TIME : 2½ HOURS **MAX. MARKS : 80**

SECTION - B

ANSWER ANY FIVE QUESTIONS: **(5x8=40)**

1. Classify the environment into different segments and highlight the significance of each segment.
2. Giving equations, explaining the chemical reactions of nitrogen oxides in the atmosphere.
3. a) Describe briefly the hydrological cycle. (4)
   b) How is carbon monoxide in air determined? (4)
4. How does the stratospheric ozone depletion occur? What are its consequences?
5. Explain how N, P and K in a soil sample are determined.
6. Write a brief note on toxic effects of arsenic and mercury.
7. a) How did the Chernobyl accident take place? Explain. (4)
   b) How is DO of water determined ? (4)

SECTION – C

ANSWER ANY TWO QUESTIONS: **(2X20=40)**

8. a) Describe the stratification of the atmosphere in detail. (10)
   b) What are the sources of green house gases? Discuss the consequences of greenhouse effect. (10)
9. a) Discuss the utility of high volume samplers and cascade collectors. (5+5)
   b) Write briefly on the analysis of TOC and cation exchange capacity of soil. (5+5)
10. a) What is COD of a water sample? How is it experimentally determined? (10)
    b) What are the causes and consequences of a) Ozone deletion
       b) Acid rain (10)

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