

# VPM's ADVANCED STUDY CENTRE

## POST GRADUATE DIPLOMA IN APPLIED ANALYTICAL CHEMISTRY ( Final Examination 2005-2006 )

Date: 29.03.2006

Time : 5.00 – 8.00 p.m.

PAPER – III

Marks: 100

**Note: Student should write two sections in two different answer sheets.**

### SECTION – I (Safety)

- Q.1) Define **any Five** of the following: 10  
a) Accident      b) Flash Point      c) Hazard      d) Risk  
e) TLV            f) Vapour density      g) PPE
- Q.2) What are the elements of Fire Triangle? Which element is added recently?  
Explain the role of water for extinguishing fires. 10
- Q.3) A) What is safety & why do we need it? 05  
B) Explain Henrich's theory of accident causation/prevention 05
- Q.4) A) What do you infer from following statements (solve **any Two**)? 04  
i) UEL of ethylene oxide is 100% v/v.  
ii) LD50 oral rat of pesticide A is 15 & that of pesticide B is 115 mg/kg body wt.  
iii) TLV and TLV (odor) of Chlorine are 1 and 5 ppm respectively.  
B) Discuss elements of EMP (Emergency Management Plan) 06
- Q.5) A) What is MSDS? Under which Act/Rule MSDS is necessary?  
Name the different Headings under which the information is given in MSDS. 05  
B) What safety precautions you will take while carrying out distillation under vacuum?  
Which PPE you will use while diluting conc.  $H_2SO_4$ ? 05

### SECTION - II ( Environmental Chemistry )

- Q.1) Write short note on **any Two** of the following: 10  
a. Water Pollution  
b. Determination of Chemical oxygen Demand [COD]  
c. Determination of Biochemical oxygen demand [BOD]
- Q.2) Give the significance of following water quality parameters (**any five**): 15  
a. Dissolved oxygen      b. Hardness      c. Chlorides  
d. Sulphates              e. Heavy Metals ( As, Cd, Cr, Pb, Cu, Hg )  
f. Ammonia                g. Phosphates
- Q.3) Write short note on Grab/Composite & Integrated sampling 10
- Q.4) Write note on preliminary, primary, secondary & tertiary treatment adopted for removal of various water pollutants. 10  
**OR**  
Give the classification of water pollutants. 10
- Q.5) Explain the following terminologies ( **any two** ): 05  
a. MLSS & MLVSS      b. F:M ratio      c. SVI