

(3 Hours)

Marks 80

- N.B. 1 Question number ONE is compulsory  
2 Attempt any THREE questions out of remaining FIVE  
3 Figure to right indicate full marks
01. Answer the following **20**
- (a) Explain Eutrophication in lakes.  
(b) What is carbonaceous and nitrification demand in BOD?  
(c) Explain Environmental legislation and regulations.  
(d) State Noise pollution causes, consequences and abatement methods.
02. (a) Water pollutants are classified? List the major water pollutants, explain any one in detail. **10**  
(b) Describe solid waste disposal methods. Explain any one in detail. **10**
03. (a) Discuss the Activated Sludge Process waste water treatment **10**  
(b) Explain in brief BOD test carried out in Laboratory scale. **10**
04. (a) Classify the waste water treatment methods. Discuss one Primary & secondary treatment methods. **10**  
(b) A completely mixed activated sludge process is to be used to treat waste water flow of 1000 m<sup>3</sup>/hr having a soluble BOD<sub>5</sub> of 250 mg/l. Design criteria are as follows:  
Y = 0.4,  $\Theta_c = 5$  days, K<sub>d</sub> = 0.1 d<sup>-1</sup>, k = 8 d<sup>-1</sup> ; K<sub>s</sub> = 75 mg/l; X = 2000 mg/l MLSS  
Calculate:  
i) Substrate exit concentration ;  
ii) Volume of aeration tank  
iii) The F/M ratio **10**
05. (a) Write a note on:- **10**  
i. The Forest Conservation Act of 1980.  
ii. Ozone layer depletion.  
(b) Draw and explain working principle and construction of Fabric filters. **10**
06. (a) Discuss the classification of hazardous waste based on material properties. **10**  
(b) Explain the effects of acid rain on human as well as on environment. **10**