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Roll No.

EIGHTH SEMESTER

B.E. (ENE)

MID SEMESTER EXAMINATION **MARCH**  **2005**

ENE-411 FIRE HAZARDS AND SAFETY CONTROL SYSTEMS

Time: 1 Hour 30 Minutes

Max. Marks : 20

Note : Attempt any **FOUR** questions.
Assume suitable missing data, if any.

- 1 Describe the toxicological and physiological effects of various narcotics and irritants on human beings. 5
- 2 Describe the significance of flashover and back draught in fire fighting. 5
- 3 Discuss the fire hazard properties of buildings. Briefly give the fire resistance based grading of structural components. 5
- 4 Describe the various lines of defence against arson attack. 5
- 5 Describe the various fire safety tactics measures. 5

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EIGHTH SEMESTER

B.E. (ENE)

MID SEMESTER EXAMINATION **MARCH 2005**

ENE-412 ANALYTICAL METHODS OF, QUALITY MANAGEMENT

Time: 1 Hour 30 Minutes

Max. Marks : 20

Note : Answer **ALL** questions.
Assume suitable missing data, if any.

- 1 A Primary settling tank of Effluent treatment plant (ETP) was monitored for BOD. The results of effluent monitoring are described in following table :

BOD (mg/l)	60-62	63-65	66-68	69-71	72-74
Number of samples	11	39	81	56	13

- [a] What will be the expected Number of samples in each BOD class if the BOD population is normally distributed.
- [b] Formulate and state the hypothesis for the claim of ETP manager that the Average effluent BOD is less than 67 mg/l. Based on the tests, comment on the claim of ETP manager.
- [c] Test the above data for goodness of fit of normal distribution. If it is not a good fit, what is the most likely distribution expected to fit this data.

(8)

- 2 A river quality monitoring program yielded the DO-BOD data as given below (in mg/l)

D.O	5.4	6.4	6.0	6.1	6.3	6.9	7.0	7.2
BOD	4.4	3.8	4.0	3.4	4.0	3.7	3.7	3.6
D.O	7.5	7.6	7.7	7.9	8.1	8.4	9.2	6.2
BOD	3.1	3.2	3.1	3.0	2.9	2.8	2.5	3.9

Assuming that the sample data is from the population with the mean (μ) of BOD and DO equal to 7.3 and 3.4 mg/l ; and standard deviation (σ) equal to 1.0 and 0.6 mg/l respectively. Find the probability that the monitored values of BOD and DO are in the range of $\mu+\sigma$ to $\mu-\sigma$.

OR

The Accidental release of hazardous chemical is explained by following cumulative distribution $F(x) = 1 - e^{-\lambda x}$ where 'x' is accidental puff release (in kg) of hazardous chemical and $\lambda = 0.2$. Determine the probability of an accidental release of more than 10 kg of hazardous chemical and comment on the results.

(5)

- 3 Determine from the basic concepts the expression of the coefficient of skewness in terms of $E(x)$

OR

A Count of MPN is taken over a series of 10 tests. The number of positive results are as follows: 17,21,25,23,17,26,24,19,21,17. Assuming the test results follow binomial distribution, estimate the maximum number of organisms that a test sample can possibly have.

(3)

- 4 Differentiate and describe the Normal (0,1) and uniform (0,1) random variates by making a sketch of the data following these distributions on a scale similar to probability paper. Also explain the utility of probability paper for statistical inference.

(4)

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B.E. (ENE)

MID SEMESTER EXAMINATION **MARCH 2005**

ENE-413 ENVIRONMENTAL IMPACT ASSESSMENT AND AUDITING

Time: 1 Hour 30 Minutes

Max. Marks : 20

Note : Answer any **FOUR** questions.

- 1[a] Define the term Environment, as interpreted by NEPA of USA. (1)
- [b] Explain different dimensions of Environment including subcategories, factors and elements. (4)
- 2 State, what is EIA. What are the key issues involved in EIA. Discuss principles, advantages and uses of EIA. (5)
- 3 Explain, how Environmental Impacts are classified by giving examples. (5)
- 4 Explain, what are the stages in Environmental Impact Assessment? What are the different criteria, that may be adopted for significance otherwise of impacts. (5)
- 5 What are Environmental Indices? Why they are needed? Explain by giving an example of one Environmental index. Also Explain, how that Environmental index is formulated. (5)