

Department of Civil Engineering  
CEI-411 Industrial Waste Management [May, 2015]

Major

Marks-30

Time: 2 hrs

\*\*Exchange of calculator/pen/erasers/etc. is not allowed. Switch off your mobile Phones. \*\*

ENTRY NUMBER: 20119910516

Q1. Please answer the following questions in **one word or one sentence**:

- a) In the Kyoto Protocol JI and ET stand for \_\_\_\_\_ and \_\_\_\_\_. [0.5+0.5=1 marks]  
b) The color code for paper and pulp industry India for consent management as per MoEFCC is \_\_\_\_\_. [1 mark]

Q2. Write short notes on **ANY TWO** of the following: [50 words each / (3\*2=6 marks)]

- a) Minamata disease (with case study) and Blue baby syndrome (with case study).  
b) Clean Development Mechanism.  
c) Coagulation in wastewater treatment.  
d) Problems in Swachh Bharat Abhiyaan with respect to industrial waste disposal.

Q3. State the topic of **your term paper** and explain the **material balance, management plans and recommendations** for better waste management of the industry discussed in your term paper. [50 words/ (1+1+1=3 marks)]

Q4. What is meant by **Zero Waste industry**? Explain how international policy agreements like Kyoto Protocol can help in achieving environmental sustainability by industrial waste management. [50 words/ (1+2=3 marks)]

OR

Draw and explain the Manufacturing Process diagram for a typical **brick kiln industry**. Identify the sources of water and air pollution. Being an environmental consultant give recommendations to control such pollution with proper justification. [50 words/ (1+1+1=3 marks)]

Q5. It is proposed to construct a **CETP** for a small size industrial cluster comprising majorly of Paper and pulp industries, cotton textile manufacturing industries and tanneries. Suggest a process design for such a CETP with proper justification. [60 words/ (4 marks)]

OR

With the help of any **Actual case study** explain the harmful effects of improper industrial waste disposal. Specify the details of the case. [60 words/ (4 marks)].

Q6. Brief the effect (long term and hazardous) of air pollution on human and environment and give examples to support your answer. [50 words/3 Marks]

Q7. Draw a flow chart for source sampling and brief isokinetic, subisokinetic and superisokinetic sampling with diagram. [4 Marks]

Q8. Brief the method of NO<sub>x</sub> measurement by wet chemistry and principle of chemiluminescence. [20 words/2 Marks]

Q9. Explain physical and chemical adsorption. List the adsorbent and brief their manufacturing and application [50 Words/3Marks]