

17646

15116

3 Hours / 100 Marks

Seat No.

--	--	--	--	--	--	--	--

- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) Attempt any THREE of the following: 12
- (i) Define air pollution. Give the classification of air pollutants with two examples of each.
 - (ii) List any eight characteristics of waste water.
 - (iii) Give the names of pollutants produced from urea plant.
 - (iv) What is solid waste? Give the various types of solid waste.
- b) Attempt any ONE of the following: 06
- (i) Draw a neat sketch of cyclone separator and describe its construction and working.
 - (ii) Describe the 3R' Principle for solid waste and give any two examples of each.

P.T.O.

- 2. Attempt any FOUR of the following:** **16**
- a) Give the CPCB air quality standards for SO_x , NO_x , SPM and CO.
 - b) State any four drinking water quality standards specified by WHO.
 - c) Describe the sludge thickening and sludge dewatering.
 - d) With neat sketch explain any one method for solid waste collection.
 - e) State the need for ISO 14001 in industries.
- 3. Attempt any FOUR of the following:** **16**
- a) Explain the working of catalytic incinerator with neat sketch.
 - b) Describe in brief any four sources of air pollution.
 - c) Describe the concepts of BOD and COD for waste water treatment.
 - d) Name the equipment which can be used for the control of dust fibres particles from process industries. Explain its working principle.
 - e) State the role of pollution control board.
 - f) Give the methods used for water sampling. Describe any one of them.
- 4. a) Attempt any THREE of the following:** **12**
- (i) Describe the construction and working of Trickling filter with suitable diagram.
 - (ii) Write the names of sludge disposal methods for waste water treatment and describe any one of them.
 - (iii) Explain the working of fabric filter with neat sketch.
 - (iv) Describe the business benefits of ISO 14000.

b) Attempt any ONE of the following:**06**

- (i) State the necessity of recovery of chemicals from black liquor.
- (ii) Describe the procedure for Environment Audit.

5. Attempt any FOUR of the following:**16**

- a) Explain the effect of air pollution on health and material.
- b) Describe any one method for disposal of bio-medical waste.
- c) Give the principle of activated sludge treatment method and explain its working.
- d) State the principle and objective of environmental management.
- e) Name the various types of water pollutants and give their sources.
- f) Describe in brief various characteristics of waste water.

6. Attempt any FOUR of the following:**16**

- a) Describe the concept of Grab Sampling and Freeze out Sampling.
 - b) Explain the working of fixed bed adsorber with neat sketch.
 - c) List out the primary treatment methods for waste water and explain any one of them.
 - d) State the effects of pollutants produced from Urea plant.
 - e) State the meaning of the terms TDS and TSS and state its significance.
 - f) Describe the components involved in solid waste management system.
-