

Total No. of Questions : 12]

SEAT No. :

P1056

[Total No. of Pages : 2

[4659]-27

B.E. (Civil Engineering)

d-INDUSTRIAL WASTE WATER MANAGEMENT

(2008 Pattern) (Semester-II) (Open Elective)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Answers to the two sections should be written in separate answer-books.*
- 2) *Your answer will be valued as a whole.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
- 5) *Assume suitable data, if necessary.*
- 6) *Answer any three questions from Section-I and any three questions from Section-II.*

SECTION-I

Q1) a) Differentiate between unit operations and unit processes. [9]

b) Discuss in detail about the activated carbon filtration. [8]

OR

Q2) a) What are the different methods that are adopted in wastewater treatment? Discuss any one in detail. [8]

b) Discuss about colloidal and dissolved solids and their removal methods. [9]

Q3) a) Explain chemical unit process. What is the role of Alum in precipitation? [8]

b) Discuss in details about Biological process. [8]

OR

Q4) Explain the following:

a) Moving Bed Bio-reactor. [6]

b) De-nitrification. [4]

c) Cyclic Reactor. [6]

P.T.O.

Q5) Discuss the following:

- a) Assimilative and supportive capacity of nature. [6]
- b) Cyanides removal from wastewater. [6]
- c) Recycling of treated sewage. [5]

OR

Q6) Give note on following:

- a) Activated Sludge Process. [9]
- b) Reactor with submerged membrane. [8]

SECTION-II

- Q7)** a) What is cost benefit analysis? Discuss. [9]
b) How the waste water useful for irrigation purpose? Explain in detail. [8]

OR

- Q8)** a) Explain in details about recycling, reuse and recovery. [8]
b) What is 3R principle? How it will useful? Explain with suitable example. [9]

- Q9)** a) Discuss in brief about zero discharge. [8]
b) How zero discharge technology is useful in pulp and paper industry? Explain. [8]

OR

- Q10)** a) How the solid waste in residential complex reduces to zero? Discuss. [8]
b) Explain in details about recovery of plastic from the industries. [8]

- Q11)** a) Explain the theory of adsorption. [9]
b) Give the water requirement for following industries. [8]
i) Textile.
ii) Automobile.
iii) Food.

OR

- Q12)** a) What is reactive material? Discuss its effects. [9]
b) What is Green process? How these can be useful to the industries? [8]

