

SUBJECT CODE NO:- P-317
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (Civil) Examination May/June 2017
Industrial Waste Treatment [Elective-II]
(Revised)

[Time:ThreeHours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
 - ii) Answer any two questions among the remaining questions (i. e 2 to 5) of section A and any two questions (i. e 7 to 10) of section B
 - iii) Neat diagram must be drawn wherever necessary
 - iv) Assume suitable data if required clearly stating the relevant assumptions

Section A

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|-----|--|----|
| Q.1 | a) Explain importance and functions of CPCB | 05 |
| | b) Explain Streeter and Phelps equation of dissolved oxygen | 05 |
| Q.2 | a) Explain the process volume reduction and its importance | 07 |
| | b) Explain by product recovery with suitable examples | 08 |
| Q.3 | a) What do you mean by environmental Audit and also explain its importance | 07 |
| | b) Explain waste water disposal by land treatment and Dilution into sea | 08 |
| Q.4 | a) A town discharges 80 cumecs of sewage into a stream having a rate of flow of 1200 cumec during lean days, at a 5 day BOD of sewage at the given temperature is 250 mg/Lit. Find the amount of critical D.O deficit and its location in downstream portion of stream Assume de oxygenation coefficient k as 0.1 and coefficient of self-purification(f_s) as 3.5 Assume saturation D. O at given temperature as 9.2 mg/lit | 08 |
| | b) Explain Zones of pollution in streams with neat diagram | 07 |
| Q.5 | Write short notes on (<u>any three</u>) | 15 |
| | a) EIA | |
| | b) Neutralization Process | |
| | c) Environmental audit | |
| | d) Water pollution control Act | |
| | e) Self-purification of Lakes. | |

Section B

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|-----|---|----|
| Q.6 | a) Explain Design consideration of activated sludge process Based on kinetics | 05 |
| | b) Explain treatment process of paper and pulp industry | 05 |
| Q.7 | a) Explain high rate anaerobic filters | 08 |
| | b) How advance waste water treatment Differ from conventional waste water treatment | 07 |

- Q.8 a) Explain the process of electro dialysis and air stripping process in waste water treatment 05
 b) An average operating data for conventional activated sludge treatment plant is as follows 10
- i) Waste water flow – 50000 M³/day
 - ii) Volume of aeration tank – 15500 M³
 - iii) Influent BOD – 200 Mg/ Lit
 - iv) Effluent BOD – 25 Mg /Lit
 - v) MLSS – 3000 Mg/ Lit
 - vi) Effluent suspended solids 40 Mg/ Lit
 - vii) Waste sludge suspended solids - 12000 Mg / Lit
 - viii) Quantity of waste sludge – 250 M³/day
- Based on above information determine
- a) Aeration period
 - b) F/M ratio
 - c) Efficiency of BOD removal
 - d) Sludge age
- Q.9 a) Explain treatment of sugar industry waste water 07
 b) What is an algal bacterium symbiotic in oxidation pond to treat waste water and also explain design considerations for oxidation pond 08
- Q.10 Write short notes [any three] 15
- a) Environmental impact of radio active waste
 - b) Detention period
 - c) F/m ratio
 - d) Chemical precipitation
 - e) UASBR