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GIET UNIVERSITY, GUNUPUR – 765022
 B. Tech (Fifth Semester – Regular) Examinations, December – 2022
BPECV5040– Industrial Waste Water Management
 (Civil Engineering)

Time: 3 hrs

Maximum: 70 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions)

(1 x 10 = 10 Marks)

- Q.1. Answer ALL questions** [CO#] [PO#]
- a. Which of the following method is in secondary treatment of waste water ? CO1 PO1
- (i) Equalization (ii) Dialysis
 (iii) Activated sludge process (iv) Neutralization
- b. Which one is the point source of pollution ? CO1 PO1
- (i) Herbicides (ii) Excess fertilizer
 (iii) .oil and grease (iv) Insecticides
- c. Which one the chemical property of waste water ? CO2 PO2
- (i) pH (ii) Colour
 (iii) Odour (iv) Taste
- d. Which one the physical property of waste water ? CO2 PO2
- (i) Organic solids (ii) Total solids
 (iii) pH (iv) Taste
- e. which of the following is the characteristics of waste water ? CO2 PO2
- (i) Alkali (ii) Toxic chemicals
 (iii) Heated water (iv) All of these
- f. Which of the following method is not in tertiary treatment of waste water ? CO3 PO1
- (i) Oxidation pond (ii) Reverse osmosis
 (iii) Dialysis (iv) Resins
- g. Which process involves stabilization of pH and bod ? CO3 PO1
- (i) Neutralization (ii) Equalization
 (iii) Coagulation (iv) None
- h. How many methods are there in waste water disposal ? CO3 PO1
- (i) 2 (ii) 3
 (iii) 4 (iv) 5
- i. How many zones are there in pollution in stream ? CO4 PO2
- (i) 3 (ii) 4
 (iii) 2 (iv) None
- j. The dissolved oxygen is reduced by -----percentage in zone of degradation ? CO4 PO2
- (i) 45 (ii) 30
 (iii) 40 (iv) 50

PART – B: (Short Answer Questions)**(2 x 10 = 20 Marks)**Q.2. Answer ALL questions

	[CO#]	[PO#]
a. What is industrial waste water and write the sources of it ?	CO1	PO1
b. What are the main sources of waste water in agriculture?	CO2	PO1
c. What are the properties of waste water ?	CO1	PO2
d. Mention the effects of industrial waste water on sewage power plant ?	CO2	PO1
e. What are the methods involved in primary treatment of industrial waste water ?	CO3	PO2
f. What are the methods involved in secondary treatment of industrial waste water ?	CO3	PO2
g. What are the methods involved in tertiary treatment of industrial waste water ?	CO3	PO2
h. What is coagulation and give examples of coagulants ?	CO4	PO1
i. Why does alum use commonly in most cases ?	CO4	PO1
j. Mention the causes of oil in streams ?	CO4	PO1

PART – C: (Long Answer Questions)**(10 x 4 = 40 Marks)**Answer ALL questions

	Marks	[CO#]	[PO#]
3. a. Explain any five industries on the basis of waste origin ,characteristics and treatment ?	10	CO1	PO1
(or)			
b. What is dilution and explain about it ?	5	CO1	PO2
c. What are the zone of pollution's ? Explain in detail?	5	CO2	PO1
4. a. Explain the following terms in detail:	10	CO3	PO2
(i) neutralization (ii) trickling filter (iii) resins (iv) activated carbon			
(or)			
b. What is waste water disposal and explain its methods in detail ?	10	CO3	PO2
5. a. Explain the function of alum and why does alum most commonly used ?	10	CO4	PO1
(or)			
b. Explain trickling filter and activated sludge process in detail ?	10	CO4	PO1
6. a. Explain the following terms in detail:	10	CO1	PO1
i. Coagulation			
ii. Activated sludge process			
iii. Reverse osmosis			
(or)			
b. Explain the following processes:	10	CO2	PO1
i. equipment modification			
ii. by product recovery			
iii. changing process to decrease waste			
iv. process change			

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