



ID NO.	
---------------	--

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Weightage: 40 %

Max Marks:40

Max Time: 2hrs.

09 May 2018, Wednesday

ENDTERM FINAL EXAMINATION MAY 2018

Even Semester 2017-18

Course: **CIV 218 ENVIRONMENTAL
ENGINEERING-II**

VI Sem.CIVIL

Instructions:

- (i) *Read the question properly and answer accordingly.*
 - (ii) *Question paper consists of 3 parts.*
 - (iii) *Scientific and Non-programmable calculators are permitted.*
 - (iv) *Assume suitable data, if any.*
-

Part A

(3 Q x 4 M = 12 Marks)

1. What do you understand by secondary wastewater treatment? List the objectives of advanced wastewater treatment.
2. List the advantages and disadvantages of Trickling filter.
3. Explain different zones of self-purification in water bodies.

Part B

(4 Q x 4 M = 16 Marks)

4. Explain Biological Nitrification and De-nitrification for nitrogen removal with equations.
5. Explain with a neat figure the oxygen sag curve indicating the salient features related to self-purification of streams.
6. Explain the Biological-Chemical method of removal of Phosphorous in wastewater.
7. With a neat sketch explain Sludge drying Beds in disposal of sludge.

Part C

(2 Q x 6 M = 12 Marks)

8. Determine the size of a high rate trickling filter for the following data.
 - a. Sewage flow = 5 MLD
 - b. Recirculation ratio = 1.5
 - c. BOD of the raw sewage = 230 mg/l
 - d. BOD removal in primary clarifier = 30%
 - e. Final effluent BOD desired = 25 mg/l

9. Calculate the area of load required for drain the sludge from the digestion tank for 40,000 population. The volume of wet sludge produced for 40,000 population was worked out as 55.2 m³/day.



ID NO:	
--------	--

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Weightage: 20 %

Max Marks: 20

Max Time: 1 hr.

27 March Tuesday 2018

TEST – 2

SET B

Even Semester 2017-18

Course: **CIV 218 ENVIRONMENTAL
ENGINEERING II**

VI Sem. CIVIL

Instruction:

- (i) Read the question properly and answer accordingly.
 - (ii) Question paper consists of 3 parts.
 - (iii) Scientific and Non-programmable calculators are permitted
-

Part A

(2 Q x 2 M = 4 Marks)

1. Explain requirements of a good trap in house drainage system.
2. What do you understand by preliminary treatment of waste water?

Part B

(2 Q x 4 M = 8 Marks)

3. Explain merits and demerits of intercepting traps.
4. Why it is necessary to provide a grit chamber? Explain the configuration of a grit chamber with the help of neat sketch.

Part C

(2Q x 4 M = 8 Marks)

5. What do you understand by secondary treatment of wastewater? Enumerate various treatment techniques used for biological treatment.
6. Design a grit chamber for a maximum wastewater flow of $8000\text{m}^3/\text{day}$, to remove particles upto of 0.2mm dia, having specific gravity of 2.65. The settling velocities of these particles is found to range from 0.018 to 0.022m/sec. Maintain a constant flow through velocity of 0.3m/sec through the provision of a proportional flow weir.



ID NO:

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Weightage: 20 %

Max Marks: 20

Max Time: 1 hr.

22 Feb Thursday 2018

TEST – 1

Even Semester 2017-18

Course: **CIV 218 ENVIRONMENTAL
ENGINEERING II**

VI Sem. CIVIL

Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted

Part A

(2 Q x 2M = 4Marks)

1. Explain the rational method of estimation of storm water.
2. What do you understand by population equivalent? How do you determine it?

Part B

(2 Q x 4 M = 8 Marks)

3. Explain the concept of Aerobic and Anaerobic digestion with equations in sewage treatment.
4. What are sewer appurtenances? List them and explain with a neat sketch any one of them with neat sketch.

Part C

(2Q x 4 M = 8 Marks)

5. The following data is available regarding various types of area and the corresponding impermeability factors of a town:

Type	% Area	Impermeability coefficient
1. Roofs	15%	0.9
2. Pavements	20%	0.8
3. Lawns, gardens, vegetation	40%	0.15
4. Unpaved	15%	0.20
5. Wooded	10%	0.05

Determine the average coefficient of runoff.

If the total area of the district is 20 hectares, determine the maximum storm water flow for a rainfall intensity of 50 mm/hour having a frequency of once in five years. Use rational formula.

6. The BOD_5 of a waste has been measured as 500 mg/l. If the rate constant $K' = 0.26/\text{day}$ (base e), what is the ultimate BOD of the waste? What proportion of BOD_u would remain unoxidised after 20 days?