

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2018 - 19 Examination

Semester:6
Subject Code: 03104351
Subject Name: Environmental Engineering -II

Date: 30/04/2019
Time:10;30am to 01:00pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions: (15)

1. Which of the following is not a trap as per shape for water collection?
a) P - trap b) Q – trap c) R – trap d) S - trap
2. _____ is best suitable type of plume behavior for dispersion of gases into atmosphere.
3. The process in which micro-organisms are suspended in the media is known as _____ Process.
4. The minimum stack height required for proper dispersion of gases is _____.
5. What is the unit of Weir Loading Rate?
6. The waste water generated from toilets is known as _____.
7. The retention time adopted for grit chamber is _____.
8. First stage BOD is also known as _____.
a) Carbonaceous BOD b) Nitrogenous BOD
c) Ultimate BOD d) Non-ultimate BOD
9. Grit chambers will remove _____.
a) Heavy Suspended materials b) Floating Suspended materials
c) Dead micro-organisms d) Dissolved materials
10. Availability of excess nutrients in water bodies can cause _____.
11. COD value is always _____ than BOD value.
12. The hardness that can be easily removed is known as _____ hardness.
13. The minimum DO required for aquatic life in water is _____.
14. The sources of pollutants that are being emitted from moving vehicles is known as _____ sources of air pollutants.
15. As the DO of wastewater increases, BOD of wastewater _____.

Q.2 Answer the following questions. (Attempt any three) (15)

- A) Differentiate between Combined and separate sewerage system.
- B) Explain various types of settlings of particles done in water.
- C) Explain growth curve of micro-organism.
- D) The 5 days 30 °C BOD of a sewage sample is 190 mg/L. Calculate its 5 days 20 °C BOD. Assume $K_{D(20^\circ)}$ as 0.1.

Q.3 A) Draw the layout of municipal sewage treatment plant and explain function of each unit. (07)

- B) Explain the working of Trickling Filter in detail. (08)

OR

- B) An industry uses 2,50,000 litres of oil (specific density 0.97) per month. If for one million litres of oil used per year, the emission of particulate matter is 3.2 tonnes per year, the emission of SO₂ is 62 tonnes per year, NO_x emission is 8.5 tonnes per year, hydrocarbon emission is 0.6 tonnes per year and carbon monoxide emission is 0.85 tonnes per year. Calculate the height of the stack required to be provided for safe dispersion of the pollutants. Assume 300 working days and 24

hours per day.

Q.4 A) Explain the sources of carbon monoxide and its effects on humans, vegetation and animals. **(07)**

OR

A) Explain the classification of air pollution. **(07)**

B) Explain Plume Behaviour in detail. **(08)**