

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S7 (R,S) Examination November 2025 (2019 Scheme).

Course Code: CET463

Course Name: ADVANCED ENVIRONMENTAL ENGINEERING

Max. Marks: 100**Duration: 3 Hours**

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|----|---|-----|
| 1 | The need for advanced waste water treatment process is on the rise. Elaborate | (3) |
| 2 | What is a sequencing batch reactor? | (3) |
| 3 | What is meant by aerobic attached growth process? | (3) |
| 4 | List out the different advanced oxidation processes | (3) |
| 5 | Describe how organic contaminants are removed in adsorption. | (3) |
| 6 | Draw a neat sketch of ion exchange process | (3) |
| 7 | Explain benefits of electro dialysis | (3) |
| 8 | How is desalination used in water treatment? | (3) |
| 9 | Explain the process of controlling the oxides of sulphur | (3) |
| 10 | What is a bag house filter? | (3) |

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

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|----|---|-----|
| 11 | a) Why is removal of phosphorous necessary? Explain the removal process | (8) |
| | b) Explain the process of biological nitrogen removal | (6) |

OR

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|----|--|-----|
| 12 | a) Explain how nutrients are removed in SBR process of waste water treatment | (8) |
| | b) Give a broad comparison of aerobic and anoxic processes | (6) |

Module II

- | | | |
|----|--|-----|
| 13 | a) Explain the water treatment process in a Rotating biological contactor. | (8) |
|----|--|-----|

- b) Explain the working process of moving bed biological reactor (6)

OR

- 14 a) Biological processes in RBC and MBBR are different. Explain. (8)
b) Explain the process of wet air oxidation (6)

Module III

- 15 a) Explain the areas of relevance of adsorption in treatment process (8)
b) Explain breakthrough curve in continuous adsorption process (6)

OR

- 16 a) Explain the different kinetic models in adsorption (8)
b) Describe the process of Ion Exchange in water treatment (6)

Module IV

- 17 a) With a neat figure, describe the membrane bioreactor process (8)
b) Elaborate in detail the advantages in Nano filtration (6)

OR

- 18 a) What are the different applications of ultra-filtration? (8)
b) Why is backwashing necessary in membrane filtration technique? (6)

Module V

- 19 a) Explain the relevance of cyclone and electrostatic precipitator (8)
b) Describe the working of an electrostatic precipitator in pollution control (6)

OR

- 20 a) Explain any one method for particulate and gaseous pollutant removal (8)
b) Elaborate on the available source reduction measures for sulphur oxides (6)
