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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY  
07 THRISSUR CLUSTER

**SECOND SEMESTER M.TECH. DEGREE EXAMINATION APRIL 2018**

**Chemical Engineering**

**Process Control**

**07CH 6128 ENVIRONMENTAL ENGINEERING AND MANAGEMENT**

**Time : 3 hours**

**Max.Marks: 60**

Answer all six questions. Part 'a' of each question is compulsory.

Answer either part 'b' or part 'c' of each question

Q.no.	Module 1	Marks
1a	What is the role of grit chamber in waste water treatment? What all parameters are to be considered while designing a grit chamber?	4
	<b>Answer b or c</b>	
b	What are the methods available for anaerobic treatment of wastewater? Analyse its limitations	5
c	Discuss the methods used for sludge treatment and disposal	5
Q.no.	Module 2	Marks
2a	Discuss the concept of Zero discharge systems	4
	<b>Answer b or c</b>	
b	With a neat schematic diagram explain the processes used for municipal waste water treatment	5
c	Discuss the concept of common effluent treatment plant. Discuss its merits and demerits	5
Q.no.	Module 3	Marks
3a	What is meant by a stable atmosphere? What is the effect of atmospheric stability on dispersion of gas pollutants	4
	<b>Answer b or c</b>	
b	What are the major gas pollutants? Discuss the sources, effects and controlling methods for any two major gas pollutants	5
c	Analyse the working of any two particulate emission control equipments	5

<b>Q.no.</b>	<b>Module 4</b>	<b>Marks</b>
<b>4a</b>	What are the major pollutants from a metal finishing industry? How are they controlled?	<b>4</b>

**Answer b or c**

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| <b>b</b> | Discuss the characteristics of wastewater from a pulp and paper industry. Also suggest a treatment scheme for treating the same. | <b>5</b> |
| <b>c</b> | Discuss the source of pollution from a fertilizer industry? How it can be controlled?  | <b>5</b> |

<b>Q.no.</b>	<b>Module 5</b>	<b>Marks</b>
<b>5a</b>	Solid waste management is a headache for the local authorities. What you think are the reasons and give suggestions for solving the same	<b>5</b>

**Answer b or c**

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| <b>b</b> | Define hazardous waste? Discuss in detail any two disposal methods used for hazardous wastes | <b>7</b> |
| <b>c</b> | Discuss the classification and characteristics of solid wastes                               | <b>7</b> |

<b>Q.no.</b>	<b>Module 6</b>	<b>Marks</b>
<b>6a</b>	Waste minimisation and recycling are considered to be the best method for managing wastes. Give your comments. Also discuss the methods used for the same	<b>5</b>

**Answer b or c**

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|----------|---|----------|
| <b>b</b> | What is meant by Environmental Impact Assessment? Discuss the steps involved and methods employed for EIA | <b>7</b> |
| <b>c</b> | What is Environmental Management system (EMS). Discuss the costs and benefits of EMS                      | <b>7</b> |