UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, April/May 2018

Course: Waste to Energy
Semester: II
Program: M.Tech
Time: 03 hrs. **Max. Marks: 100**

Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Discuss about the right practices of municipal waste handling.	**4**	**CO1**
Q 2	Brief the 4-R`s in waste hierarchy.	**4**	**CO1**
Q 3	List the various advantages of waste segregation.	**4**	**CO2**
Q 4	List the merits and demerits of incineration process for waste utilization.	**4**	**CO3**
Q 5	Discuss the bio-chemical conversion process for food waste management.	**4**	**CO4**
	SECTION B		
Q 6	Discuss about the various types of solid waste in details	**10**	**CO1**
Q 7	Discuss about the characteristics of medical waste & its Hazards	**10**	**CO2**
Q 8	Explain the various onsite storage methods. Critically evaluate the best options under Indian conditions	**10**	**CO3**
Q9	Explain the measure to be taken by urban local bodies (ULB) towards segregation of recyclable waste	**10**	**CO4**
	SECTION-C		
Q 10	Discuss the optimum parameter conditions for the production of syngas from MSW. (or) Discuss in details with flow diagram the role of microbes in Anaerobic Digestion of food waste to produce biogas.	**20**	**CO5**
Q 10		**20**	**CO4**
Q 11	Discuss the requirements of landfills layouts. Explain the sanitary landfilling with help of diagram.	**20**	**CO5**

Name: **Enrolment No:**	UPES

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SECTION A

S. No.		Marks	CO
Q 1	Briefly discuss about Hazards and Remedies of medical waste.	**4**	**CO1**
Q 2	Discuss the waste minimization hierarchy.	**4**	**CO2**
Q 3	Discuss the purpose of onsite waste processing.	**4**	**CO3**
Q 4	Discuss waste composting process.	**4**	**CO3**
Q 5	Discuss the four ways to treat the organic biodegradable waste.	**4**	**CO4**
	SECTION B		
Q 6	Discuss the landfill and sanitary landfill with help of diagrams.	**10**	**CO3**
Q 7	Discuss on environmental and personal hazards of solid waste.	**10**	**CO1**
Q 8	Discuss on storage of waste at source.	**10**	**CO5**
Q9	Discuss the principles and potential of the anaerobic digestion of waste-activated sludge.	**10**	**CO4**
	SECTION-C		
Q 10	Discuss the biogas production from an advanced micro-bio-loop with help of diagram. (or)	**20**	**CO4**
Q 10	Discuss advantages and disadvantages of any two methods of incineration process.	**20**	**CO5**
Q 11	Discuss with help of diagrams, the principles and potential of the thermo-chemical conversion methods of MSW.	**20**	**CO3**