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B.E. / B. TECH DEGREE EXAMINATION, MAY 2023

Third Semester

OE18304 - SOLID WASTE MANAGEMENT*(Chemical Engineering)**(Regulation 2018)***TIME: 3 HOURS****MAX.MARKS:****100**

- CO1** Determine the solid waste management systems with respect to its physical, chemical, biological properties, and associated critical considerations.
- CO2** Develop the knowledge about the sources, types and composition of solid waste with methods of handling, sampling and storage of solid waste.
- CO3** Propose the appropriate method for solid waste collection, transportation, redistribution and disposal
- CO4** Develop the skill to identify the methods of disposal of hazardous & radioactive solid waste
- CO5** Acquire knowledge about the risk assessment and regulations of solid waste management.

PART- A (10x2=20Marks)
(Answer all Questions)

	CO	RBT LEVEL
1 Brief about the municipal solid waste management in India.	1	2
2 List the types of solid waste generated in industries.	1	2
3 Mention the characteristics of solid waste.	2	2
4 Give the various components of biota.	2	2
5 Distinguish acute exposure and chronic exposure to hazardous waste.	3	2
6 Name the gases arises from landfill which leads to contribute greenhouse effect.	3	2
7 Compare biological and chemical treatment of solid waste.	4	2
8 Identify the poorly likelihood of formation of which type of nuclear waste.	4	2
9 List out the environmental risks due to solid waste.	5	2
10 Drop down the features of risk assessment.	5	2

PART- B (5x 13=65Marks)

	Marks	CO	RBT LEVEL
11(a) (i) Enumerate the factors affecting waste generation rates.	(7)	1	3
(ii) Explain in detail on effects of recycling activities on waste generation.	(7)	1	3
(OR)			
11(b) (i) Elaborate the combustion process in solid waste management.	(7)	1	3
(ii) Explain in detail about Phoenix Ash Technology.	(7)	1	3

- 12(a)** (i) Elucidate the fate and transport of contaminants in groundwater. (7) 2 3
(ii) Enumerate the transport of contaminants through air. (7) 2 3

(OR)

- 12(b)** (i) Explain in detail about the health effects of hazardous waste. (7) 2 3
(ii) Elaborate about the landfilling methods to manage the solid waste. (7) 2 3

- 13(a)** Examine the different level of landfill cover employed for Municipal solid waste with neat sketch and explain its importance? (14) 3 3

(OR)

- 13(b)** Intricate the secured landfill technique on how hazardous waste is disposed, with neat sketch? (14) 3 3

- 14(a)** Enumerate the different safety measures employed at nuclear power plant where the source of nuclear waste is addressed, with detail schematics. (14) 4 3

(OR)

- 14(b)** Elaborate the different types of ionizing radiation and its health effect posed in the form of nuclear waste. (14) 4 3

- 15(a)** Explain in details about various methods of risk assessment (14) 5 3

(OR)

- 15(b)** Enumerate any one case study on solid waste risk assessment in Tamilnadu. (14) 5 3

PART- C (1x 10 =10 Marks)

- | | Marks | CO | RBT
LEVEL |
|--|-------------|----------|--------------|
| 16(a) As an Environmental Protector, give your ways to reduce, recycle and reuse the solid waste with an example. | (10) | 1 | 5 |
