



RollNo. -

--	--	--	--	--	--	--	--	--	--

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, APRIL / MAY 2025

Biomedical Engineering

VIth Semester

BM5691 & Management of Wastes in Hospitals
(Regulation 2019)

Time:3hrs

Max.Marks: 100

CO1	Describe the importance of handling wastes and proper disposal.
CO2	Explain about regulatory requirements of waste management.
CO3	Comprehend the Challenges against the infectious waste.
CO4	Apply various waste disposal methods.
CO5	Describe the importance of safety and risk assessment techniques.

BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

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

Q. No.	Questions	Marks	CO	BL
1	What is Hospital waste?	2	1	L1
2	Compare chemical waste and pharmaceutical waste.	2	1	L2
3	Enumerate any two guidelines given by HCF and CBWTF.	2	2	L2
4	Write short notes on Basel convention techniques.	2	2	L1
5	Distinguish between Autoclave and Hydroclave.	2	3	L2
6	State the routes of transmission of disease.	2	3	L1
7	Enlist various methods involved in solid waste disposal.	2	4	L1
8	Elaborate methods involved in reducing hazardous waste and radioactive waste using 4Rs tools.	2	4	L2
9	Mention the need for physical hazard identification in hospitals.	2	5	L1
10	Difference between Risk assessment and Risk analysis.	2	5	L2

PART- B (5x 13=65Marks)
(Restrict to a maximum of 2 subdivisions)

Q. No.	Questions	Marks	CO	BL
11 (a)(i).	Explain with suitable examples different treatment and disposable technologies of hospital waste.	7	1	L1
(ii).	Classify different types of medical waste with colour coding.	6	1	L2
OR				
11 (b)(i).	Enumerate different types of segregation process involved in hospital waste management.	7	1	L1
(ii).	Discuss about Elements of solid waste Management.	6	1	L2
OR				
12 (a)	What are the various legislations and policies followed by EPA and waste regulations 2016 in India with regard to handle of Medical waste?	13	2	L1
12 (b)(i).	Ensure various procedures and guidelines given by hospital waste regulations such as authority, appeal, rule (3), annual report.	8	2	L2
(ii).	Write short notes on transboundary movements.	5	2	L2

13 (a)(i).	Describe transmission of disease related to pathogens, causes of infections, need for sterilization and disinfectant agents used in hospitals.	5	3	L2
(ii).	Discuss the essential parameters of steam sterilization and Pasteurization techniques.	8	3	L1
OR				
13 (b)(i).	Briefly discuss about Chemical sterilization and Thermal sterilization technology.	7	3	L1
(ii).	Write short notes on Microwave irradiation and dry heat sterilization techniques methods.	6	3	L2
14 (a)	Discuss various current treatment technologies available for solid waste disposal system including vermicomposting, deep burial, landfill, deep well leach let dumping methods.	13	4	L1
OR				
14 (b)	Illustrate with suitable examples of various current treatment technologies available for hospital liquid waste disposal system.	13	4	L2
15 (a)	Elaborate the different approaches of risk quantification matrix table with probability of risk and hazard in multi specialty hospitals all over country.	13	5	L3
OR				
15 (b)	Explain risk management in Super specialty hospital based on the principle behind environmental issues, physical hazards, EMI/EMR and Electrical safety issues in India.	13	5	L4

PART- C (1x 15=15Marks)
(Q.No.16 is compulsory)

Q. No.	Questions	Marks	CO	BL
16. (i).	How is Biomedical waste disposed of safely by Private and Public hospitals? What are the measures by which advanced nations handled such waste management efficiently and effectively?	8	4	L6
	Discuss the composition of biomedical waste and the role of occupational health program and emergency practices followed in our country by NGO and NPO.	7	1	L4

