BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: IMSc **SEMESTER : VI**
BRANCH: FOOD TECHNOLOGY **SESSION : SP/19**

SUBJECT: IMF6009 FOOD INDUSTRY WASTE MANAGEMENT

TIME: 3:00 HOURS **FULL MARKS: 60**

INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)	What are sustainable lively hood in food waste management system?	[2]
(b)	Compare main type of food losses for Rich countries vs developing countries	[4]
(c)	Show in steps on the journey to green production. Show the percentage of distribution of energy used for food production in USA in 2004.	[6]
Q.2(a)	Why people burn house hold waste?	[2]
(b)	What are impacts of waste if not managed wisely?	[4]
(c)	Give three categories of wastage of EU council directive on Animal By-products. What are the green production criteria for food and manufacture products?	[6]
Q.3(a)	What are the benefits of ISO 9001?	[2]
(b)	Show different steps in developing a quality system.	[4]
(c)	What are the sources of casein & protein based adhesives? Give applications.	[6]
Q.4(a)	Why ISO 14001 is generic standard?	[2]
(b)	What are the seven principles of HACCP?	[4]
(c)	Classify the waste according to their effects on human health and environment.	[6]
Q.5(a)	What are the drawbacks for using biomass as solid fuel?	[2]
(b)	What are the advantages of briquettes of making agriculture waste?	[4]
(c)	What is PAH and HCB? What is biogas? Give typical composition of biogas.	[6]
Q.6(a)	What are the effects of dioxins on human health?	[2]
(b)	Schematically show Janta model biogas plant.	[4]
(c)	What are the facilities needed for value addition to biomass? What are the different types of problem in food waste?	[6]
Q.7(a)	Why removal of ammonia is necessary from waste water?	[2]
(b)	Show the biological nitrogen cycle.	[4]
(c)	What is COD and BOD and how it is useful in determining the quality of water?	[6]

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