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GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, June – 2021

(Sixth Semester)

BBTPE6040 - ENVIRONMENTAL BIOTECHNOLOGY

(Biotechnology)

Time: 2 hrs

Maximum: 50 Marks

Answer ALL Questions**The figures in the right hand margin indicate marks.****PART – A: (Multiple Choice Questions)****(1 x 10 = 10 Marks)**

<u>Q.1. Answer ALL questions</u>	[CO#]	[PO#]
a. Biomarkers having high toxicological,	1	1
(i) Identifiable		
(ii) Relevance		
(iii) Identity		
(iv) Reactive oxygen species		
b. Which of the following pollutants are responsible for the cause of SMOG?	1	1
(i) From incinerators		
(ii) Emissions from vehicles		
(iii) Both incinerators and emissions from vehicles		
(iv) None of the above		
c. Which of the following gas is toxic to methanogenic bacteria?	1	1
(i) Carbon		
(ii) Sulphur		
(iii) Nitrogen		
(iv) Nitrogen		
d. Which of the following material is used as a bioplastic?	2	1
(i) Polystyrene		
(ii) Polypropylene		
(iii) Polyhydroxybutyrate		
(iv) Dextran		
e. Find the true statement about benzene	2	1
(i) pi-electrons are delocalised in the ring		
(ii) Three isomeric forms are possible in a monosubstituted benzene		
(iii) It readily undergoes addition due to unsaturation		
(iv) It possesses two types of C-C bonds		
f. Othmer chart is useful in estimating the heat of	2	1
(i) Mixing		
(ii) Wetting		
(iii) Adsorption		
(v) None of these		
g. The role of a catalyst is to change _____.	3	1
(i) Gibbs energy of reaction.		
(ii) Activation energy of reaction.		
(iii) Enthalpy of reaction		
(v) Equilibrium constant.		
h. PHB is used in _____	3	1
(i) Manufacture of shampoo bottles		
(ii) Medical applications		
(iii) Agricultural applications		
(iv) Adhesives		
i. Which of the following is used to produce biogas from biomass?	4	1
(i) Anaerobic treatment		
(ii) Aerobic treatment		
(iii) Fermentation		
(iv) Pyrolysis		
j. What are the fermentation conditions for the ethanol production?	4	1
(i) pH 6; temperature 35°C		
(ii) pH 5; temperature 35°C		
(iii) pH 6; temperature 30°C		
(iv) pH 5; temperature 30°C		

PART – B: (Short Answer Questions)

(2 x 5 = 10 Marks)

Q.2. Answer ALL questions

	[CO#]	[PO#]
a. What is biosorption?	1	1
b. Define fermentative bacteria.	2	1
c. Give an account on catalytic antibodies.	3	1
d. Write a note on stoichiometry.	3	1
e. Define oil shales.	4	1

PART – C: (Long Answer Questions)

(6 x 5 = 30 Marks)

Answer ANY FIVE questions

	Marks	[CO#]	[PO#]
3. Discuss in detail about biosensor technology.	(6)	1	1
4. Briefly Explain microbial systems for heavy metal accumulation.	(6)	1	1
5. Discuss on anaerobic and aerobic biological treatment.	(6)	2	1
6. Write a note on applications of industrial waste water treatment.	(6)	2	1
7. Give a brief account on aliphatic and aromatic hydrocarbon	(6)	3	1
8. Write in detail about thermodynamics of microbial process for the transformation of environmental contaminants.	(6)	3	1
9. Give a detailed account of biofertilizers.	(6)	4	1
10. Discuss ethical issues in environmental biotechnology.	(6)	4	1

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