

**B.E. FOOD TECHNOLOGY AND BIO-CHEMICAL ENGINEERING FOURTH YEAR
FIRST SEMESTER – 2025**

Subject : WASTE VALORIZATION OF FOOD & BIOCHEMICAL PROCESSES

Time: 3hr

Full Marks: 100

Part I (Total Marks 50)

Instructions : Use Separate Answer scripts for each part

Answer any **five** questions from the following:

5x10=50

1. What are the advantages of agro wastes as a source of dye? Mention the problems associated with natural dye for industrial scale application. 5+5=10 (CO3)
2. What are the health benefits of utilizing coffee by products? How the coffee pulp can be utilized? 5+5=10 (CO3)
3. What is the importance of whey as a valorized product? What is demineralization? What is the use of demineralized whey? How lactose of whey has been valorized? 4+1+1+4=10 (CO4)
4. What are the conventional ways of tea waste disposal? With any two examples explain how tea waste has been used to produce value added materials? 5+5=10 (CO3)
5. What is Chitin? What are chitin derived products? Mention the application of any two of them. What is the importance of poultry feather? (1+1+3)+5=10 (CO1)
6. What are the sources of generation of meat by products? Mention the nutritive value of meat by products. What is the pharmaceutical use of meat by products? 3+5+2=10 (CO1)
7. Mention any one way to use spoiled fish. How fish air bladder has been processed and utilized? 5+5=10 (CO1)

[Turn over

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**B.E. FOOD TECHNOLOGY AND BIO-CHEMICAL ENGINEERING
FOURTH YEAR FIRST SEMESTER EXAM 2025**

WASTE VALORIZATION OF FOOD & BIOCHEMICAL PROCESSES

Part – II (50 Marks)

Full Marks: 100

Time: 3 hrs

Group-A

Answer any one question

1×10 = 10

1. Briefly describe the simple sugar production methods from lignocellulosic materials.
2. What is biorefinary concept? Draw a biorefinary chart for solid waste from apple juice processing industries.

Group-B

Answer any two questions

2×20 = 40

3. What is the source of pectin? Write its basic structure. Briefly describe pectin extraction method. What are the applications of pectin? $3+3+7+7 = 20$
4. Write the different sources of essential oil. Briefly describe different essential oil extraction methods. Write applications of essential oil. $3+10+7 = 20$
5. What are the different types of natural colours and write their sources? Write the advantages and disadvantages of natural colours and write their applications. $10+10 = 20$
6. Define nutraceuticals. What are the different sources of nutraceuticals. Write their extraction methods. What are the different applications of nutraceuticals? $2+4+9+5 = 20$