

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

**CLASS: B. TECH.
BRANCH: BIOENGINEERING AND BIOTECHNOLOGY**

**SEMESTER : VII
SESSION :MO/2023**

SUBJECT: BE412 PROCESS BIOTECHNOLOGY

TIME: 3 HOURS

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 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.
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		CO	BL
Q.1(a)	The growth of bacteria depends on different variables. Explain the types of yields during the growth phenomenon?	[5] 1	1
Q.1(b)	Elucidate the properties of industrially important microbes?	[5] 2,3	3
Q.2(a)	Define MM kinetics and relationship with substrate?	[5] 2	2
Q.2(b)	Assess the pros and cons of continuous culture of operation of a process?	[5] 4,5	4
Q.3(a)	Discuss the sterilization kinetics assuming the possibility of 1% contamination?	[5] 1,2	2
Q.3(b)	Examine the pathways of air filter sterilization in a fermenter?	[5] 3,4	3
Q.4(a)	Evaluate the process production of citric acid?	[5] 5	5
Q.4(b)	Investigate the synthesis of Penicillins with key regulatory variables?	[5] 5	4
Q.5(a)	Illustrate the significance of batch culture cultivation?	[5] 4,5	5
Q.5(b)	Explore the mechanism by which a biocatalyst can be made stable under operational conditions?	[5] 3,4	4

.....28/11/2023 M:.....