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

CLASS: BTECH **SEMESTER : IV**
BRANCH: BIOTECH **SESSION : SP/2024**

SUBJECT: BE214R1 NATURAL PRODUCT 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.

			CO	BL
Q.1(a)	Select the different sources of natural products giving one suitable example in each case. Compare the types of metabolites.	[5]	1	3,4
Q.1(b)	Classify the phytochemicals and explain their importance as natural products citing suitable examples. Major biosynthesis pathways of metabolites are interrelated. Justify.	[5]	1	4,5
Q.2(a)	Illustrate the Alkaloid biosynthesis pathway giving **one** example and analyze the importance of Shikimic acid pathway in the productions of natural products	[5]	2	2,4
Q.2(b)	Select and analyze the tests performed for screening of natural compounds from plants and microorganisms with **one** suitable example in each case	[5]	2	3,4
Q.3(a)	Choose and explain the importance of **one conventional and** one **advanced technique** used for extraction of natural products	[5]	3	3,5
Q.3(b)	Select and evaluate the importance of any **one** purification and **one** characterization technique for analysis of natural products	[5]	3	3,5
Q.4(a)	Determine the production of pigment using extraction technique citing **one** suitable example	[5]	4	5
Q.4(b)	Interpret the role of plant cell culture technique for the production of natural products and explain the process giving **one** suitable example	[5]	4	5
Q.5(a)	Select and describe the production process of any **one** nutraceutical and **one** biopharmaceutical	[5]	4	5
Q.5(b)	Categorize the basic steps involved in the heterologous natural product biosynthesis and evaluate its importance giving **one** suitable example	[5]	4	4,5

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