



MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VII SEMESTER B.TECH. EXTERNAL EXAMINATIONS NOVEMBER 2017

END SEMESTER EXAM

SUBJECT: METABOLIC ENGINEERING [BIO 4007]

Date of Exam: **25/11/2017** Time of Exam: **2.00 PM – 5.00 PM** Max. Marks: **50**

Instructions to Candidates:

❖ Answer ALL the questions & missing data may be suitable assumed

1A.	State the different types of reactions involved in the cell synthesis process and brief their functions.	6
1B.	Discuss about the various transport processes of biomolecules across the cell membrane.	4
2A.	How catabolite repression is used for the global control of bacteria and other microorganisms? Explain its significance with an example.	5
2B.	Explain Trophophase - Idiophase relationships in the production of secondary metabolites.	5
3A.	What are primary metabolites? Explain how different feedback regulations happens in the synthesis of primary metabolites.	8
3B.	How are isocitrate dehydrogenase and citrate synthase regulated?	2
4A.	Illustrate the processes involved in bioethanol production from a waste and also its function.	7
4B.	How do you convert the insoluble substrates during biomass conversion?	3
5A.	Discuss the different strain improvement techniques used for the mass production of desired products.	6
5B.	Describe the effect of gene dosage during enzyme production regulation.	4