

Reg.No. _____



Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)
(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – Nov/Dec – 2016

Code : 14BI2010
Sub. Name : COMPUTATIONAL SYSTEMS BIOLOGY

Semester : 2016-17 ODD
Duration : 3hrs
Max. marks : 100

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	What is network?	CO1	3
	b.	Briefly explain the techniques available to measure the complex networks	CO1	12
	c.	Define shannons information theory	CO2	5
(OR)				
2.	a.	Name some biological networks	CO1	4
	b.	Write a detaile note on methods available to characherise a netwoks	CO2	13
	c.	Define adjacency matrix	CO1	3
3.	a.	Briefly describe the methodology for systems structure identification	CO3	10
	b.	Derive how we can analyse the Robustness of the biological systems	CO2	10
(OR)				
4.	a.	Explain the experimental techniques for protein protein interaction analysis	CO2	7
	b.	Write a note on insilico methods for protein-protein analysis	CO3	7
	c.	Write a open source database available for protein protein interaction .	CO2	6
5.	a.	Define metabolic networks	CO1	4
	b.	Explain the methods for metabolic network modeling and genome scale reconstruction	CO3	16
(OR)				
6.	a.	What is SBML models?	CO1	3
	b.	Explain the models expressed in SBML	CO2	4
	c.	Briefly explain the importance and uniqness of MATHSBML in systems biology	CO2	10
	d.	Define SBN	CO1	3
7.	a.	Explain the methods and analytical technique available for gene regulatory network analysis	CO2	20

(OR)				
8.	a.	Briefly describe the software integrated database for metabolic networks	CO2	7
	b.	Write a note on metabolic network simulation	CO3	7
	c.	Write the application of metabolic network reconstruction	CO2	6
		<u>Compulsory:</u>		
9.	a.	Write a note on softwares for biological network simulation	CO2	5
	b.	Define cell designer? Explain the software platform and analytical methods and steps involved in networks simulation.	CO3	12
	c.	Write a short note on common software platform used in systems biology	CO3	3

ALL THE BEST