



**NAVACHANA
UNIVERSITY**
a UGC recognized University

School: School of Science
Program: MSc-LS
Year: 2nd **Semester:** 3rd
Examination: End Semester Examination
Examination year: December - 2021

Course Code: LS211 **Course Name:** Taxonomy, Systematics and Phylogeny
Date: 06/12/2021 **Total Marks:** 40
Time: 08:30 am to 10:30 am **Total Pages:** 02

Instructions:

- Write each answer on a new page.
- Use of a calculator is permitted/not permitted.
- Draw labelled-figures wherever it is necessary.
- * COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping

Q. No.	Details	Marks	COs*	BTL#
Q.1	<p>Objective-based questions. (All mandatory; 1M x 16Q = 16M)</p> <ol style="list-style-type: none"> 1) Define: Taxonomy. 2) Taxonomy is superior to systematics. Write true or false with proper explanation. 3) Explain two points about how theoretical biology can assist classification system? 4) Modern definition of 'Species' define it as static unit. Write true or false with proper justification. 5) In 1735, Carl Linnaeus developed a system of classification in his _____ (name) book. 6) Write nested hierarchy till family (major groups to family). 7) Write three characteristic features of Mammalia. 8) <i>Canis lupus</i> and <i>Canis latrans</i> have dissimilar features so they are classified in different genus. Write true or false with proper explanation. 9) Write full form of LUCA. 10) Reptiles and birds can't be compared in universal tree of life. Write true or false with proper justification. 11) _____ and _____ are examples of bottleneck effect. 12) How neutralist theory of mutation contributes to evolution? 13) Write three components of phylogenetic tree. 14) What do you mean by gene silencing? Give example. 	16	CO1, CO2, CO3, CO4, CO5, CO6	BT1, BT2, BT3, BT5

	15) Differentiate between pairwise alignments versus multiple alignments. 16) What do you mean by binomial nomenclature?			
Q.2	Short answers. (Any Six; 2M x 6Q = 12M) 1) Explain about the stages in taxonomy. 2) Differentiate between classical taxonomy and modern taxonomy with proper explanation. 3) Explain 5 points about the role of taxonomist. 4) Design and explain a situation in which immunological aspect of biosystematics can assist classification system. 5) Describe: Explanation of life according to 'Scala Naturae'? 6) Explain: The formation of gap in fossil records. 7) Explain with examples: Gene duplication and Pseudogenes.	12	CO1, CO2, CO3, CO4, CO5, CO6	BT1, BT2, BT3, BT6
Q.3	Long answers. (Any Three; 4M x 3Q = 12M) 1) Explain 8 points in detail: The contribution of systematic to applied biology. 2) Explain in detail: 4 postulates of Darwin with examples. 3) Explain 5 different mechanisms of evolution with examples. 4) Explain in detail: How sequence data of amino acid, RNA, and DNA contributes to Molecular Phylogeny?	12	CO1, CO2, CO3, CO4, CO5, CO6	BT2, BT3, BT4, BT5

*****End of Question Paper*****