

Q-I	1	Calculate the 'measures of central tendency' for the given grouped frequency distribution data: Class Interval (Frequency): 0-10 (5); 10-20 (8); 20-30 (15); 30-40 (16); 40-50 (6).	(14)
	2	Explain probability of sampling methods in brief.	
	<b>OR</b>		
	1	Describe methods of data collection in brief.	
	2	Write a detailed note on graphical presentation of data.	
Q-II	1	A random sample of 12 patients with specific disorder shows the sample mean heart rate 108 with a sample standard deviation of 8. Check whether the average heart rate of a random sample of 12 patients differs significantly from a normal value of 72 using one sample t test. Critical t-value = 2.201	(14)
	2	Write a detailed note on types of hypotheses with an example.	
	<b>OR</b>		
	1	What is the t-test? Explain its usage along with the comparison of its main three types. Mention the formula for calculation of one sample t-score.	
	2	Explain parametric and non-parametric tests in brief.	
Q-III	1	Explain in detail: DNA sequence databases. (Any two)	(14)
	2	What is sequence alignment? Write down local and global alignment in detail.	
	<b>OR</b>		
	1	Define phylogenetic analysis and briefly describe commonly used tools and databases for phylogenetic studies.	
	2	Explain in detail: Protein structure databases. (Any two)	
Q-IV	1	Explain various types of research.	(14)
	2	Write a note on the Human Ethics Committee of an Indian Institute.	
	<b>OR</b>		
	1	What is a hypothesis? Explain types and significance.	
	2	Write a note on CCSEA or CPCSEA.	
Q-V	<b>Answer any SEVEN out of TWELVE.</b>		(14)
	1	Define bivariate data with an example.	02
	2	What is secondary data?	02
	3	Define enumerator.	02
	4	Find out the 'mean' and 'grand mean' for the given data: Group A- 3, 4, 3, 2, 3; Group B- 5, 6, 6, 3, 5; Group C- 9, 7, 4, 7, 8.	02
	5	What is the chi-square test?	02
	6	Define p value.	02
	7	What is the purpose of accession numbers in GenBank?	02
	8	Mention two key features of UCSF Chimera.	02
	9	State two key differences between SWISS-PROT and TrEMBL.	02
	10	What is the title of a research paper? What kind of information does it provide about the paper?	02
	11	Briefly explain the case report.	02
	12	What is an institutional biosafety committee? What is its role in the management of the research centre?	02