

BIostatistics and Research Methodology

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The data presented in the form of a circle is called _____ a. Pie diagram b. Pictogram c. Cartogram d. Bar diagram	K1	CO1
	2	What is the median of the sample 5, 5, 11, 9, 8, 5, 8? a. 5 b. 6 c. 8 d. 9	K2	CO1
2	3	When observed and expected frequency completely coincide Chi-square will be _____. a. + 1 b. - 1 c. Greater than 1 d. 0	K1	CO2
	4	Binominal distribution was discovered by _____. a. James Bernoulli b. Simean Denis Poisson c. De- Moivre d. Carl Gauss	K2	CO2
3	5	In Transmission Electron Microscope the sample needs to be a. Thick b. Thin c. Frozen d. Stained with Dyes only	K1	CO3
	6	Which type of centrifuge is used to separate organelles and macromolecules? a. Microcentrifuge b. Analytical Centrifuge c. Ultracentrifuge d. Differential Centrifuge	K2	CO3
4	7	The most common solvent used in NMR spectroscopy is a. D2O b. H2O c. Methanol d. Benzene	K1	CO4
	8	The enzyme used in the reverse transcription step of RT- PCR is a. DNA polymerase b. RNA polymerase c. Ligase d. Reverse Transcriptase	K2	CO4
5	9	When a citation includes more than _____ authors, only the surname of the first author is cited followed by <i>et al.</i> a. 3 b. 4 c. 5 d. 6	K1	CO5
	10	Which software is commonly used for detecting plagiarism? a. SPSS b. Grammarly c. Turnitin d. Excel	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Record the sources of secondary data.	K2	CO1
		(OR)		
	11.b.	Compare and contrast median and mode with suitable examples.		
2	12.a.	Comment on the analysis of variance and its classification.	K3	CO2
		(OR)		
	12.b.	Give an account on chi square test.		
3	13.a.	Detail the working principle of a compound light microscope with a labeled sketch.	K4	CO3
		(OR)		
	13.b.	Explain the concept of phase contrast microscopy and its applications in biological research.		
4	14.a.	Find out the working principle and applications of thin layer chromatography.	K4	CO4
		(OR)		
	14.b.	Narrate the methodology of RT- PCR and its applications.		
5	15.a.	Describe the key principles to follow while preparing a scientific paper for publication.	K4	CO5
		(OR)		
	15.b.	List out the applications of SPSS in data analysis for scientific research.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO																						
1	16	Describe the diagrammatic representation of data with suitable examples.	K5	CO1																						
2	17	Calculate the coefficient of correlation for the ages of husband and wives. <table><tr><td>Age of husbands</td><td>23</td><td>27</td><td>28</td><td>28</td><td>29</td><td>30</td><td>31</td><td>33</td><td>35</td><td>36</td></tr><tr><td>Age of Wives</td><td>18</td><td>20</td><td>22</td><td>27</td><td>21</td><td>29</td><td>27</td><td>29</td><td>28</td><td>29</td></tr></table>	Age of husbands	23	27	28	28	29	30	31	33	35	36	Age of Wives	18	20	22	27	21	29	27	29	28	29	K6	CO2
Age of husbands	23	27	28	28	29	30	31	33	35	36																
Age of Wives	18	20	22	27	21	29	27	29	28	29																
3	18	Identify the types of centrifugation techniques and explain the differential and density gradient centrifugation.	K6	CO3																						
4	19	Expound the working mechanism of Atomic Absorption Spectroscopy and its applications in trace metal analysis.	K4	CO4																						
5	20	Assess step by step process of preparing a scientific research paper for submission to a peer reviewed journal.	K5	CO5																						