

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch - CLINICAL NUTRITION AND DIETETICS

BIostatistics and Research Methods

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	is an academic activity and as such the term should be used in a technical sense. (A)Research (B)Making notes (C)Objective (D)Writing report	K1	CO1
	2	design which relates to the conditions under which the observations are to be made. (A)Statistical (B)Observational (C)Operational (D)Sampling	K2	CO1
2	3	is plagiarism. A) Using your own ideas without citation. B) Copying someone else's work and presenting it as your own C) Quoting a source correctly in your work D) Collaborating with others on a project	K1	CO2
	4	In which type of data classification are the categories ordered but the intervals between them are not necessarily equal? A) Nominal B) Ordinal C) Interval D) Ratio	K2	CO4
3	5	Which of the following factors is most likely to influence birth rates in a population? A) Economic conditions B) Weather patterns C) Average height of individuals D) Types of clothing worn	K1	CO4
	6	Which of the following is the formula for calculating the crude mortality rate? A) (Total deaths / Total population) × 1,000 B) (Total births / Total population) × 1,000 C) (Total recoveries / Total population) × 100 D) (Total deaths / Total births) × 1,000	K2	CO4
4	7	What does a correlation coefficient of +1 indicate? A) No relationship between variables B) A perfect positive relationship between variables C) A perfect negative relationship between variables D) A weak positive relationship between variables	K1	CO4
	8	Which of the following is NOT a measure of dispersion? A) Range B) Variance C) Median D) Standard Deviation	K2	CO4
5	9	Which of the following factors will increase the width of a confidence interval? A) Increasing the sample size B) Decreasing the confidence level C) Increasing the variability of the data D) All of the above	K1	CO4

Cont...

5	10	In a one-way ANOVA, what does the null hypothesis state? A) All group means are different B) At least one group mean is different from the others C) All group means are equal D) The sample sizes are equal across groups	K2	CO4
---	----	--	----	-----

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.	List the objectives of Research.	K3	CO1																
	(OR)																			
	11.b.	Describe the features of good design.																		
2	12.a.	Explain Nominal and Ordinal scales.	K3	CO4																
	(OR)																			
	12.b.	List the points to determine sample size.																		
3	13.a.	Discuss the uses of Vital Statistics.	K4	CO4																
	(OR)																			
	13.b.	Explain the sources of health statistics.																		
4	14.a.	Calculate the spearman's rank correlation coefficient. <table><tr><td>X</td><td>2</td><td>1</td><td>4</td><td>3</td><td>5</td><td>7</td><td>6</td></tr><tr><td>Y</td><td>1</td><td>3</td><td>2</td><td>4</td><td>5</td><td>6</td><td>7</td></tr></table>	X	2	1	4	3	5	7	6	Y	1	3	2	4	5	6	7	K3	CO4
	X	2	1	4	3	5	7	6												
	Y	1	3	2	4	5	6	7												
(OR)																				
14.b.	Explain the Various measures of dispersion.																			
5	15.a.	The standard deviation of the height of students of a college is 4.0 cm. Two samples are taken. The standard deviation of 100 B.Com students is 3.5 cm and 50 B.A Economics students is 4.5 cm. Test the significance of the difference of standard deviations of the samples.	K5	CO4																
	(OR)																			
	15.b.	On the basis of information noted below, find out whether the new treatment is comparatively superior to the conventional one. (Use 5% level) <table><tr><td></td><td>Favorable</td><td>Non favorable</td><td>Total</td></tr><tr><td>Conventional</td><td>40</td><td>70</td><td>110</td></tr><tr><td>New</td><td>60</td><td>30</td><td>90</td></tr><tr><td>Total</td><td>100</td><td>100</td><td>N=200</td></tr></table>				Favorable	Non favorable	Total	Conventional	40	70	110	New	60	30	90	Total	100	100	N=200
	Favorable	Non favorable	Total																	
Conventional	40	70	110																	
New	60	30	90																	
Total	100	100	N=200																	

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	Illustrate the types of research.	K3	CO2																		
2	17	Discuss the role and responsibilities of institutional ethics committee.	K3	CO2																		
3	18	Explain the problems for collecting the sickness data.	K4	CO3																		
4	19	Find the mean, median and mode for the following data. <table><tr><td>Class interval</td><td>0 – 20</td><td>20 – 40</td><td>40 – 60</td><td>60 – 80</td><td>80 – 100</td></tr><tr><td>Frequency</td><td>8</td><td>12</td><td>30</td><td>20</td><td>10</td></tr></table>	Class interval	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100	Frequency	8	12	30	20	10	K3	CO2						
Class interval	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100																	
Frequency	8	12	30	20	10																	
5	20	Three different machines are used for production. On the basis of the outputs. Setup One – Way ANOVA table and test whether the machines are equally effective. <table><tr><th colspan="3">MACHINES</th></tr><tr><th>MACHINE I</th><th>MACHINE II</th><th>MACHINE III</th></tr><tr><td>10</td><td>9</td><td>20</td></tr><tr><td>15</td><td>7</td><td>16</td></tr><tr><td>11</td><td>5</td><td>10</td></tr><tr><td>10</td><td>6</td><td>14</td></tr></table> Given that the value of F at 5% level of significance for (2,9) d.f is 4.26	MACHINES			MACHINE I	MACHINE II	MACHINE III	10	9	20	15	7	16	11	5	10	10	6	14	K5	CO5
MACHINES																						
MACHINE I	MACHINE II	MACHINE III																				
10	9	20																				
15	7	16																				
11	5	10																				
10	6	14																				

Z- Z- Z END