

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch - **FOODS AND NUTRITION**

RESEARCH METHODOLOGY AND STATISTICS

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	In which type of sampling does each member of the population have an equal chance of being selected? A) Stratified Sampling B) Systematic Sampling C) Random Sampling D) Convenience Sampling	K1	CO1
	2	Which type of research aims to test hypotheses and establish causal relationships? A) Exploratory Research B) Descriptive Research C) Analytical Research D) Experimental Research	K2	CO1
2	3	Which type of data classification would you use for sorting data by age groups, such as 18-24, 25-34, etc.? A) Ordinal Classification B) Nominal Classification C) Interval Classification D) Ratio Classification	K1	CO2
	4	Which of the following best describes primary data? A) Data collected from existing sources B) Data collected first-hand for a specific research purpose C) Data that has been processed and analyzed D) Data collected from government publications	K2	CO2
3	5	The median of a dataset is defined as: A) The most frequently occurring value B) The middle value when the data is sorted in ascending order C) The average of all values D) The difference between the highest and lowest values	K1	CO3
	6	What does the correlation coefficient measure? A) The strength and direction of the linear relationship between two variables B) The mean of a dataset C) The spread of data around the mean D) The percentage of data that lies within a certain range	K2	CO3
4	7	In a binomial distribution, what does the variable n represent? A) The number of successes B) The number of trials C) The probability of success D) The number of failures	K1	CO4
	8	What does ANOVA stand for? A) Analysis of Variance B) Analysis of Variables C) Average Normal Output Analysis D) Analysis of Observed Value	K2	CO4

Cont...

5	9	Which type of graph is used to display data trends over time? A) Bar Graph B) Line Graph C) Pie Chart D) Box Plot	K1	CO5
	10	Which section of a research report typically includes detailed information on how the research was conducted? A) Results B) Introduction C) Methods D) Conclusion	K2	CO5

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.	Explain the meaning and objectives of research.	K5	CO1						
	(OR)									
	11.b.	Compare the census and sample survey.								
2	12.a.	Identify the important sources of secondary data.	K3	CO2						
	(OR)									
	12.b.	Organize the various classifications of data.								
3	13.a.	Consider the following distribution: X: 0-10 10-20 20-30 30-40 40-50 Y: 12 18 20 25 23 Compute mean and median.	K3	CO3						
	(OR)									
	13.b.	Calculate the standard deviation from the following data:								
		Marks			0-10	0-20	0- 30	30-40	40-50	50-60
	No.of students	5	12	30	45	50	37	21		
4	14.a.	Four coins are tossed simultaneously. What is the probability of getting (i) 2 heads and 2 tails (ii) At least two heads (iii) At least one head	K3	CO4						
	(OR)									
	14.b.	In a random sample of 400 persons from a large population, 120 are female. Can it be said that males and females are in the ratio of 5:3 in the population? Use 1% level of significance.								
5	15.a.	Discuss the meaning and precautions of interpretation of data.	K6	CO5						
	(OR)									
	15.b.	Elaborate the significance of plagiarism in research.								

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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	Deduct the various types of sampling.	K5	CO1																									
2	17	Construct the general rules for tabulation in research.	K3	CO2																									
3	18	Calculate the correlation coefficient between the following data: <table><tr><td>X</td><td>5</td><td>9</td><td>13</td><td>17</td><td>21</td></tr><tr><td>Y</td><td>12</td><td>20</td><td>25</td><td>33</td><td>35</td></tr></table>	X	5	9	13	17	21	Y	12	20	25	33	35	K3	CO3													
X	5	9	13	17	21																								
Y	12	20	25	33	35																								
4	19	1,000 students at college level are graded according to their I.Q and their economic conditions. Use chi-square test to find out whether there is any association between economic conditions and the level of I.Q. <table><tr><td>Economic Conditions</td><td colspan="3">I.Q</td><td></td></tr><tr><td></td><td>High</td><td>Medium</td><td>Low</td><td>Total</td></tr><tr><td>Rich</td><td>160</td><td>300</td><td>140</td><td>600</td></tr><tr><td>Poor</td><td>140</td><td>100</td><td>160</td><td>400</td></tr><tr><td></td><td>300</td><td>400</td><td>300</td><td>1,000</td></tr></table> [Given for V=2, $\chi^2_{(0.05)} = 5.99$]	Economic Conditions	I.Q					High	Medium	Low	Total	Rich	160	300	140	600	Poor	140	100	160	400		300	400	300	1,000	K3	CO4
Economic Conditions	I.Q																												
	High	Medium	Low	Total																									
Rich	160	300	140	600																									
Poor	140	100	160	400																									
	300	400	300	1,000																									
5	20	Formulate the steps involved in writing research report.	K6	CO5																									

Z-Z-Z

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