

JAN – FEB 2026

PhD Program: Academic Year 2025-26

Course Work Examination

Course Code: **PhD101** and Course Name: **Research Methodology**

Date: 19-01-2026 Duration: 2.00 PM to 4.30PM Max. Marks: 70

Instructions:

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

	Question	Max. Marks	CO	BT Level
Qu-1	Solve any THREE questions out of FOUR .	15		
a)	What are the different types of Microsoft tools used in Research.	5	6	U
b)	Describe Linear Programming in research Methodology.	5	5	U
c)	Explain any five different types of Research in detail.	5	2	U
d)	The mean and standard deviation of a binomial variate X are respectively 6 and 2, find: i) The probability mass function ii) $P(X = 3)$ iii) $P(X \geq 2)$.	5	4	Ap
Qu-2	Solve any THREE questions out of FOUR .	15		
a)	What are the differences between Parametric and Non-Parametric tests.	5	4	U
b)	Describe different types of charts and graphs used in statistical analysis.	5	6	U
c)	Give an account of different types of data and methods of data collection.	5	3	U
d)	A bag contains 3 red, 3 white, 3 green balls. One ball is taken out of the bag at random. What is the probability that the ball drawn is – (1) Red (2) Not Red (3) Either Red or White.	5	4	Ap
Qu-3	Solve any TWO questions out of THREE .	20		
a)	1) Distinguish between Binomial and Poisson Distribution. 2) Students of a class were given an aptitude test. Their marks were found to be normally distributed with mean 60 and standard deviation 5. What percentage of students scored (i) more than 60 marks (ii) between 45 and 65 marks. Given: area between $Z = 0$ and 1 is 0.3413, between $z = 0$ and 3 is 0.4986	10	4	Ap

	and between $Z = 1$ and 0.8 is 0.2881 .																					
b)	Describe the assumption, concept, Postulate Proposition, hypothesis, law in research.	10	1	U																		
c)	Illustrate how Hypothesis testing is important in research process with an example.	10	1	Ap																		
Qu-4	Solve any TWO questions out of THREE .	20																				
a)	Illustrate the role of Research Design in preparing a research Report.	10	3	AP																		
b)	Discuss the role of a literature review in shaping the direction of research study.	10	2	U																		
c)	Calculate Correlation Coefficient and interpret the result: <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>Marks in statistics</td> <td>15</td> <td>20</td> <td>28</td> <td>12</td> <td>40</td> <td>60</td> <td>20</td> <td>80</td> </tr> <tr> <td>Marks in Maths</td> <td>40</td> <td>30</td> <td>50</td> <td>30</td> <td>20</td> <td>10</td> <td>30</td> <td>60</td> </tr> </table>	Marks in statistics	15	20	28	12	40	60	20	80	Marks in Maths	40	30	50	30	20	10	30	60	10	5	Ap
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