



Department of Food Technology
School of Interdisciplinary Sciences and Technology
Jamia Hamdard, New Delhi-110062
END SEM EXAMINATION (December, 2025).
B.Tech. Food Technology (VII Semester)
Paper Title: **Research Methodology**; Paper Code: **BFTC-701**

Roll No. **B.Tech.**
7th Sem.
End. Sem.

Time allotted: 2 hr 30 min

Maximum marks: 60

Important: At the END, mention how many questions from each section you have attempted.

Note: Write to the point. Before answering make sure you have mentioned the Question No. & Section.

Section-A (Attempt all) (5×2=10 marks)

Questions	Mapping
Q1. Define research and state any two objectives of research.	CO1,5,6;PO6
Q2. What are the essential criteria of good research?	CO7;PO9
Q3. What is meant by research integrity? Give one example.	CO1,2;PO1
Q4. Define population and sample with one example each.	CO2;PO2
Q5. What is plagiarism? Give one method to avoid it.	CO2;PO2

Section- B (Attempt any five) (5×6=30 marks)

Section- B (Attempt any five) (5*6 = 30 marks)

Questions	Mapping												
Q6. Explain the various types of research with suitable examples.	CO3;PO3												
Q7. Describe the different sampling techniques used in research.	CO5;PO3												
Q8. Discuss the steps involved in formulating a research problem.	CO7;PO8												
Q9. The following data represent the test scores of 10 students: 12, 15, 18, 20, 22, 24, 25, 28, 30, 32 Calculate the mean, median, and mode.	CO1,3;PO3												
Q10. A researcher collected data on hours studied (X) and marks obtained (Y): X: 2, 3, 4, 5, 6 Y: 4, 5, 6, 7, 9 Compute the correlation coefficient.	CO5;PO4												
Q11. A chi-square test was conducted with the following observed and expected frequencies: Observed: 20, 30, 25, 25 Expected: 25, 25, 25, 25 Calculate the χ^2 value and state whether the variation is significant at 5% level (critical value for df=3 is 7.815).	CO5;PO3												
Q12. Calculate the standard deviation for the following data:	CO3;PO3												
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Class interval</td> <td style="text-align: center;">0-10</td> <td style="text-align: center;">10-20</td> <td style="text-align: center;">20-30</td> <td style="text-align: center;">30-40</td> <td style="text-align: center;">40-50</td> </tr> <tr> <td style="text-align: center;">Frequency</td> <td style="text-align: center;">5</td> <td style="text-align: center;">8</td> <td style="text-align: center;">15</td> <td style="text-align: center;">16</td> <td style="text-align: center;">6</td> </tr> </table>	Class interval	0-10	10-20	20-30	30-40	40-50	Frequency	5	8	15	16	6	
Class interval	0-10	10-20	20-30	30-40	40-50								
Frequency	5	8	15	16	6								

Section C (Attempt any two) (2×10=20 marks)

Questions	Mapping															
Q13. Discuss the essential components of a good research proposal and include the structure, style, and common mistakes.	CO5;PO4															
Q14. The following data show the relationship between temperature (X) and enzyme activity (Y). X: 10, 20, 30, 40, 50 Y: 5, 7, 9, 10, 13 Fit a simple linear regression equation ($Y = a + bX$) and estimate Y at X = 45.	CO5;PO4															
Q15. Perform a one-way ANOVA on the following data for three treatments: <table><tr><th>Treatment A</th><th>Treatment B</th><th>Treatment C</th></tr><tr><td>12</td><td>10</td><td>14</td></tr><tr><td>15</td><td>12</td><td>18</td></tr><tr><td>14</td><td>11</td><td>16</td></tr><tr><td>13</td><td>9</td><td>17</td></tr></table> Critical F-value ≈ 4.26 (at $\alpha = 0.05$)	Treatment A	Treatment B	Treatment C	12	10	14	15	12	18	14	11	16	13	9	17	CO7;PO5
Treatment A	Treatment B	Treatment C														
12	10	14														
15	12	18														
14	11	16														
13	9	17														
Q16. Write a detailed note on major Indian funding agencies supporting research (any four).	CO7;PO2															