



**GIET UNIVERSITY, GUNUPUR – 765022**  
 Ph. D. (First Semester) Examinations, January – 2024  
**23SPPCRM1010 / PPCRM1010 – Research Methodology**  
 (Common to all branches)

Time: 3 hrs

Maximum: 70 Marks

**The figures in the right hand margin indicate marks.**

**Answer ANY FIVE Questions**

**(14 x 5 = 70)**

- |  | Marks |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
|--|-------|---|---|----|----|----|----|----|----|----|---|---|---|---|---|----|----|----|----|----|----|----|----|
| 1.a. What is research methodology? Explain the objective and nature of research.   | 7     |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| b. Explain the significance of a research report and narrate the various steps involved read and writing such a report.  | 7     |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| 2.a. Discuss about Evaluative Review, Explorative Review, Instrumental Review.   | 7     |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| b. Explain the term scaling? What are the different types of scaling techniques available for researches?  | 7     |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| 3.a. Describe the Criteria of a Good Research Problem.   | 8     |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| b. Explain the differences between research problem, research topic & research purpose?  | 6     |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| 4.a. Explain various methods of collecting primary data. Give examples of each with relative merits and limitations.   | 14    |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| 5.a. Analyze the characteristics of good research design.  | 7     |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| b. What do you mean by “Sample Design”? What points should be taken into consideration by researcher in developing a sample design for the research project?   | 7     |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| 6. Calculate the coefficient of correlation and the lines of regression from the following data:   |       |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| <table border="1" style="margin: auto;"> <tr> <td>X</td><td>:</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td>Y</td><td>:</td><td>9</td><td>8</td><td>10</td><td>12</td><td>11</td><td>13</td><td>14</td><td>16</td><td>15</td> </tr> </table> | X     | : | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9 | Y | : | 9 | 8 | 10 | 12 | 11 | 13 | 14 | 16 | 15 | 14 |
| X  | :     | 1 | 2 | 3  | 4  | 5  | 6  | 7  | 8  | 9  |   |   |   |   |   |    |    |    |    |    |    |    |    |
| Y  | :     | 9 | 8 | 10 | 12 | 11 | 13 | 14 | 16 | 15 |   |   |   |   |   |    |    |    |    |    |    |    |    |
| Also obtain the value of Y when X = 6.5.   |       |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| 7.a. What are the conditions required for applying chi-square test? Explain its limitations for applying the test.   | 6     |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| b. Explain the following:  |       |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| i. Type I error  |       |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| ii. Type II errors   |       |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| iii. Level of significance   |       |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| iv. Critical values and critical region in the context of testing of hypothesis.   | 8     |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |
| 8. Four doctors each test four treatments for a certain disease and observe the number of days each patient takes to recover. The recovery time in days are given as follows:  |       |   |   |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |

	Treatment			
Doctor	1	2	3	4
A	10	14	19	20
B	11	51	17	21
C	9	12	16	19
D	8	13	17	20

14

Analyse the difference between (i) the doctors and (ii) the treatments.

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