Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec – 2017**

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|  |  |  |  |
| **Code :** | **15MA3022** | **Duration :** | **3hrs** |
| **Sub. Name :** | **RESEARCH METHODOLOGY AND BIOSTATISTICS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Briefly describe the different steps involved in a research process. | CO2 | 10 |
| b. | Distinguish between research methods and research methodology. | CO2 | 5 |
| c. | Write a short notes on Applied Vs Fundamental research. | CO2 | 5 |
| (OR) | | | | |
| 2. | a. | What do you mean by research? Write the objectives of the research. | CO2 | 5 |
| b. | Explain the important concepts relating to research design. | CO2 | 10 |
| c. | Write a short notes on Thesis and Dissertation. | CO2 | 5 |
|  |  |  |  |  |
| 3. | a. | What are the criteria of good research? | CO2 | 6 |
|  | b. | Write about the general format in writing the thesis and assignments. | CO2 | 14 |
| (OR) | | | | |
| 4. |  | The following table gives the distribution of marks obtained by 49 students.   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | X | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 | 40-45 | | F | 5 | 6 | 15 | 10 | 5 | 4 | 2 | 2 |  1. Draw histogram, frequency polygon ogive curves for the above table. 2. Calculate mean, median, mode, upper quartile, lower quartile, inter quartile range and quartile deviation. | CO1 | 20 |
|  |  |  |  |  |
| 5. | a. | Obtain the rank correlation coefficient for the following data:   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | X | 68 | 64 | 75 | 50 | 64 | 80 | 75 | 40 | 55 | 64 | | Y | 62 | 58 | 68 | 45 | 81 | 60 | 68 | 48 | 50 | 70 | | CO1 | 10 |
|  | b. | The following are the scores of two batsmen A & B in a series of innings:   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | A | 12 | 115 | 6 | 73 | 7 | 19 | 119 | 36 | 84 | 29 | | B | 47 | 12 | 16 | 42 | 4 | 51 | 37 | 48 | 13 | 0 |  1. Who is the better score getter? 2. Who is more consistent? | CO1 | 10 |
| (OR) | | | | |
| 6. | a. | A buyer of electric bulbs purchases 400 bulbs; 200 bulbs of each brand. Upon testing these bulbs, he found that brand A has an average of 1225 hours with a standard deviation of 42 hours where as brand B had a mean life of 1265 hours with a S.D of 60 hours. Can the buyer be certain that brand B is superior than brand A in quality? | CO1 | 10 |
|  | b. | In a simple sample of 600 men from a large city, 400 are found to be car owners. In one of 900 from another large city, 450 are car owners. Do the data indicate that the cities are significantly different with respect to car owning among men? | CO1 | 10 |
|  |  |  |  |  |
| 7. | a. | Ten individuals are chosen at random from a population and their heights are found to be in inches 63, 66, 67, 68, 69, 70, 70, 71, 71. In the light of this data, discuss the suggestion that the mean height in the universe is 66 inches. | CO1 | 10 |
|  | b. | Two independent samples of 8 and 7 items respectively had the following values:   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Type A | 9 | 13 | 11 | 11 | 15 | 9 | 12 | 14 | | Type B | 10 | 12 | 10 | 14 | 9 | 8 | 10 | - |   Is the difference between the means of samples significant? | CO1 | 10 |
| (OR) | | | | |
| 8. | a. | The nicotine contents in milligrams in two samples of tobacco were found to be as follows:   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Sample A | 28 | 30 | 32 | 33 | 33 | 29 | 34 | | Sample B | 29 | 30 | 30 | 24 | 27 | 29 | - |   Test whether the two samples come from the same normal population, using F – test (Value of F for (5, 6) d.f = 4.39) | CO1 | 10 |
|  | b. | The following data are collected on two characters:   |  |  |  |  | | --- | --- | --- | --- | | Consumption of tea/ Families | Hindu | Non Hindu | Total | | Families consuming Tea | 1236 | 164 | 1400 | | Families not consuming Tea | 564 | 36 | 600 | | Total | 1800 | 200 | 2000 |   Based on this, can you say that whether there is any significant difference between consumption of Tea among Hindu and Non Hindu families? | CO1 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Five doctors each test treatment for a certain disease and observe the number of days each takes to recover. The results are as following(recovery time in days):   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Doctors | Treatments | | | | | | 1 | 2 | 3 | 4 | 5 | | A | 10 | 14 | 23 | 19 | 20 | | B | 11 | 15 | 24 | 17 | 21 | | C | 9 | 12 | 20 | 16 | 19 | | D | 8 | 13 | 17 | 17 | 20 | | E | 12 | 15 | 19 | 15 | 22 |   Discuss the difference between i. Doctors ii. Treatments. | CO1 | 15 |
|  | b. | Compare randomized block design and Latin square design. | CO1 | 5 |

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