**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, December 2022**

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|  | **1BC1002** | Roll No. | Total Printed Pages: 2 |
| **1BC1002** |  |
| BCA I Year I- Semester (Main/Back) End Semester Examination, December 2022  **(All Spl.)** | |
| **BCACSA1101 : Computer Oriented Numerical & Statistical Methods** | | | |

# Time: **3** Hours. Total Marks: **60**

Min. Passing Marks: **21**

Attempt **five** questions selecting one question from each Unit. There is internal choice from Unit I to Unit V. Marks of each question or its parts are indicated against each question / parts. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Use of following supporting material is permitted during examination for this subject.

# **Scientific Calculator** **2.------------------Nil-----------------------**

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| **Q.1** | **(a)** | Explain different types of graph with diagrams. | **(8)** | **Analyzing & Creating** |
|  |  |  |  |  |
|  | **(b)** | Find the Mode of the following frequency distribution:   |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | f | 3 | 5 | 8 | 7 | 15 | 12 | 9 | 6 | 1 | | **(4)** | **Evaluating** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.2** | **(a)** | Find Mean deviation by median of the following   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | x | 0 - 10 | 10 - 20 | 20 - 30 | 30 - 40 | 40 - 50 | | f | 5 | 8 | 15 | 16 | 6 | | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  | **(b)** | Find the Standard deviation of the following   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | x | 85-89 | 80-84 | 75-79 | 70-74 | 65-69 | 60-64 | 55-59 | 50-54 | | f | 1 | 1 | 2 | 3 | 9 | 8 | 2 | 1 | | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  |  | **UNIT-II (CO2)** |  |  |
|  |  |  |  |  |
| **Q.3** | **(a)** | Find the coefficient of correlation of the following data by short method   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | X | 100 | 200 | 300 | 400 | 500 | 600 | 700 | | Y | 30 | 50 | 60 | 80 | 100 | 110 | 130 | | **(7)** | **Evaluating** |
|  |  |  |  |  |
|  | **(b)** | Find both regression lines for the following data   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | X | 6 | 2 | 10 | 4 | 8 | | Y | 9 | 11 | 5 | 8 | 7 | | **(5)** | **Evaluating** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.4** | **(a)** | Find the coefficient of correlation of the following data by direct method   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | X | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | Y | 8 | 9 | 11 | 12 | 13 | 14 | 16 | 15 | | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  | **(b)** | Find correlation coefficient by Spearsman’s ranking method of the following   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | X | 20 | 22 | 22 | 23 | 24 | 24 | 24 | 25 | | Y | 28 | 25 | 23 | 25 | 22 | 21 | 28 | 21 | | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  |  | **UNIT-III (CO3)** |  |  |
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|  |  |  |  |  |
| **Q.5** | **(a)** | A bag contain 5 red and 7 green balls. Two balls are drawn then what is the probability that one is Green and other is red? | **(4)** | **Analyzing & Evaluating** |
|  |  |  |  |  |
|  | **(b)** | A number was drawn at random from the number 1 to 50. What is the probability that it will be a multiple of 4 or 5 or 6 ? | **(8)** | **Analyzing & Evaluating** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.6** | **(a)** | A problem in statistics is given to three students A,B and C whose chances of solving it are 1/2, 1/5 and 1/7. What is the probability that the problem will be solved? | **(8)** | **Analyzing & Evaluating** |
|  |  |  |  |  |
|  | **(b)** | Find the probability of drawing a king, a queen and a Jack. In that order from a pack of cards in three consecutive draws. The cards drawn not being replaced. | **(4)** | **Analyzing & Evaluating** |
|  |  |  |  |  |
|  |  | **UNIT-IV (CO4)** |  |  |
|  |  |  |  |  |
| **Q.7** |  | Using Newton Gregory formula to find the value of **y(25**) & **y(73)** from the following table:   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | X | 0 | 5 | 10 | 15 | 20 | 25 | 30 | | Y | 0.0000 | 0.0875 | 0.1763 | 0.2670 | 0.3640 | 0.4663 | 0.5774 | | **(6+6)** | **Evaluating** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.8** | **(a)** | Using the Langrage’s interpolation formula, find the value of y corresponding to **x = 10** from the following table   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **X** | **5** | **6** | **9** | **11** | **13** | | **Y** | **12** | **13** | **14** | **16** | **17** | | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  | **(b)** | Using Newton divided difference formula for interpolation, find **f (5)**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **X** | **1** | **2** | **3** | **4** | **7** | | **Y** | **2** | **4** | **8** | **16** | **158** | | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  |  | **UNIT V (CO5)** |  |  |
|  |  |  |  |  |
| **Q.9** | **(a)** | Evaluate by using Simpson’s 1/3rd and 3/8th formula. | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  | **(b)** | Evaluate by Trapezoidal method. | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.10** |  | Using Runge-Kutta method, find approximate value of y for x = 0.2 if , given that y = 1 when x = 0 | **(12)** | **Evaluating** |