**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE -27**

Register Number:

Date:

**B.C.A II SEMESTER**

**SEMESTER EXAMINATION: APRIL 2019**

**CA 2418-Computer Oriented Numerical Analysis and Statistics**

**Time – 2.5 hours Max Marks-70**

**I Answer all the following 2\* 10=20**

1. Define errors. What are the different sources of errors?
2. What is normalized floating point number?
3. Mention the steps used in Newton Raphson Method.
4. Find | A| A =
5. Write down the formulae for Newton Divided Difference method.
6. Evaluate by trapezoidal Rule.
7. Define Statistics and what are the applications of statistics?
8. What are qualitative data and quantitative data? Give example?
9. Find the mean and variance of Bernoulli’s with parameter p=2/3

**II Answer any Five of the following 6\*5=30**

1. A) Explain the Arithmetic operations used in Normalized floating point representation. (3)

B)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| X | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Y | 2.105 | 2.808 | 3.614 | 4.604 | 5.871 | 7.412 | 9.467 |

Evaluate using Simpsons (3/8) Rule. (3)

1. A) Evaluate by Secant method correct to two decimal places.(2)

B) Solve using Cramer’s rule (4)

1. Find F(0.15) from the data , using Lagrange’s method of interpolation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 |
| F(X) | 0.09985 | 0.19867 | 0.29552 | 0.38942 | 0.47943 |

1. Fit a second degree polynomial for the following data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 0 | 1 | 2 | 3 | 4 |
| Y | 1 | 1.8 | 1.3 | 2.5 | 6.3 |

1. A) Given mean= 30.5 for the following distribution missing frequency

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 10 | 20 | 30 | 40 | 50 |
| f | 8 | 10 | - | 15 | 7 |

B) The probabilities of the two mutually exclusive events are 4 and 6, find the probability of occurrence at least one of the event.

16.A)what is the probability that there will be 53 Mondays in a randomly selected a) leap year b) non-leap year.

B) What is frequency distribution and what are the measures of FD, and explain the value of β2

17. Define Statistical Hypothesis . Mention the types.

**III Answer any two of the following 2\*10=20**

18. A) Using Euler’s method the Equation, y(0) =1 , at x=0.1, h= 0.02 (5)

B)

Solve by Gaussian method. (5)

19. Derive Simpsons1/3rd Rule.

20. A) The number of fault on the surface of each of 1000sites was distribution as follows.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No of faults | 0 | 1 | 2 | 3 | 4 | 5 |
| No of sites | 760 | 138 | 67 | 25 | 8 | 2 |

Find Standard Derivation and Variance (7)

B) Write a short note on Experiment, Sample Space, and Event (3)