

PARUL UNIVERSITY
FACULTY OF IT & COMPUTER SCIENCE
BCA Summer 2018 – 19 Examination

Semester: 3**Date: 03/05/2019****Subject Code: 05191205****Time: 10: 30 am to 01:00pm****Subject Name: Computer Oriented Numerical and Statistical Methods****Total Marks: 60****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Answer the followings.**A. Write short notes.****(05)**

1. Define Random Variable.
2. Write down the Formula of Bisection method.
3. Write down the Formula of Absolute Error.
4. Define random experiment.
5. Define Sample space.

B. Multiple choice type questions/ Give the sentence true or false. (Each of 01 marks)**(10)****1. What is the probability of getting tail when a coin is tossed?**

- A) $\frac{3}{4}$ B) $\frac{1}{2}$ C) $\frac{1}{6}$ D) None of these

2. What is the meaning of $\Delta =$ _____

- A) Forward difference operator B) Backward difference operator
C) Central difference operator D) Divided difference operator

3. Absolute error in taking $\pi = 3.141593$ as $\frac{22}{7}$ is _____

- A) 0.0123334 B) 0.0985432 C) 0.00125678 D) 0.00126414

4. Variance is square of _____

- A) Mode B) Median C) Standard Deviation D) None of these

5. Which of the following method is used to solve linear equation

- A) Gauss Jordan B) Bisection C) Secant method D) Lagrange method

6. What is the Mode of 10,12,14,15,15,17,12,14,12

- A) 12 B) 24 C) 20 D) 8

7. What is the mean of height (in cm) of 7 students given as 172,154,155,160,163,158,170?

- A) 122 B) 161.71 C) 404 D) None of these

8. What is the probability of getting an odd number when a die is thrown?

- A) $\frac{3}{4}$ B) $\frac{1}{2}$ C) $\frac{1}{6}$ D) None of these

9. Which of the following is truncated off 2.3155 to 4 significant figures?

- A) 2.314 B) 2.315 C) 2.316 D) 2.3155

10. Which of the following is not an error

- A) Absolute B) Percentage C) Truncation D) Flow

Q.2 Answer the followings. (Any Five)(Each question of 3 mark)

(15)

1. Round off the following numbers correct to four significant figures :

3.26425 , 35.46735 , 4985561 , 0.70035 , 0.00032217 , 18.265101

2. Solve system of linear equations using Gauss elimination method.

$$x - 2y + z = 3, x + y - z = 4, x - y - z = 2$$

3. Find mean, median and mode for below observation.

15,17,12,13,14,16,1,8,18,14

4. The Standard deviation of a Poisson variable is 0.8 Find its Mean, P(0) and P(1).

5. Find Mean of given 11 numbers 12,15,17,18,20,22,27,16,14,30,25.

6. The Mean and Variance of a Binomial distribution are 15 and 6 respectively. Find the values of n and p.

Q.3 Answer the following. (Any three)

(15)

1. Find roots of the equation $x^3 - 12 = 0$ using Bisection method.

2. Find the value of f(3) using Newton's divided difference formula

x	0	1	2	4	5	6
y	1	14	15	5	6	19

3. Find the best-fit values of a and b so that $y = a + bx$ fits the data given in the table

X	0	1	3	4
Y	1	1.8	3.3	6.3

4. Fit a second-degree parabola to the following data taking x as the independent variable.

X	0	1	2	3	4
Y	-4	-1	4	11	20

Q.4 Answer the following.

Solve system of linear equations using Gauss Jordan method.

A.

$$x - 2y + 2z = 3, 2x - y - z = 5, 2x + y - z = 4$$

(05)

B. Find the value of y when x=12 using Newton's forward interpolation formula.

X	10	20	30	40	50	60	70	80	90
Y	42	77	84	96	105	116	125	144	169

(10)

OR

B. There are three basket containing respectively 3 white and 4 blackballs: 2 white and 2 black balls: 1 white and 3 black balls. One basket is selected random and a ball is drawn from it. The ball is found to be white. Find the probabilities that this ball comes from first basket.

(10)