

PARUL UNIVERSITY
FACULTY OF IT & COMPUTER SCIENCE
BCA Summer 2017 – 18 Examination

Semester: 3

Subject Code: 05191205

Subject Name: Computer Oriented Numerical and Statistical Methods

Date: 15-06-2018

Time: 02:00 pm to 04:30 pm

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 A. Answer the followings.**(05)**

- 1) What is the value of 3.14159265 on rounding off up to 5 digit?
- 2) What is the Mean and Variance of Poisson Distribution?
- 3) A bag contains 2 white balls and 2 black balls .What is the probability of getting a white ball from it.
- 4) Write Newton's Forward Interpolation formula.
- 5) Define : Mutually Exclusive Events

B. Multiple choice type questions/ Give the sentence true or false.**(10)**

- 1) For a Normal Distribution S.D is 5 then the value of Mean Deviation is _____.
 A) 5 B) 2 C) 4 D) 3.33
- 2) If A and B are two mutually exclusive events then $P(A \cup B) = P(A) + P(B)$. (True/False)
- 3) Which of the following is not an error _____
 A) absolute B) percentage C) truncation D) flow
- 4) If $P(A) = \frac{1}{3}$, $P(B') = \frac{1}{4}$ and $P(A \cap B) = \frac{1}{6}$ then $P(A \cup B) =$ _____.
 A) $\frac{1}{3}$ B) $\frac{1}{12}$ C) $\frac{11}{12}$ D) $\frac{12}{11}$
- 5) 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
- 6) Mode and S.D of Normal Distribution are 60 and 15 respectively then approximate value of quartile deviation is = _____.
 A) 50 B) 10 C) 72 D) 75
- 7) Mean of Standard Normal Variate is _____.
 A) 2 B) 0 C) 1 D) none of these
- 8) Which of the following method is used to solve linear equation
 A) gauss Jordan B) Bisection C) Secant method D) Langrage method
- 9) The Variance of Binomial Distribution is _____.
 A) npq B) 0 C) np D) none of these
- 10) Rounding off the number 80.758 to one decimal gives 80.76. (True /False)

Q.2 Answer the followings.

- 1) Calculate Mode from the given data :

(02)

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of Students	3	5	7	10	12	6

- 2) Find the roots of the equation $x^3 - 12 = 0$ using secant method correct to one decimal place. **(03)**
- 3) Find the probability of getting an odd number when a cubical die is thrown. **(02)**

- 4) If A and B are two independent events and $P(A) = \frac{1}{2}$, $P(B) = \frac{1}{5}$ then find $P(A \cup B)$ **(02)**

5) Fit the best Straight Line to the data : (03)

x	-1	0	1	2
y	1	0	1	4

6) Find a root of $x^3 - x - 1 = 0$ using Bisection Method correct to 2 decimal places. (03)

Q.3 Answer the following. (Any three) (15)

1) For a Binomial Variate , $n = 10$ and $P(x = 5) = 2 * P(x = 4)$, find the value of P.

2) Use Lagrange's interpolation formula to find the value of $f(9)$.

X	5	7	11	13	17
F(X)	150	392	1452	2366	5202

3) Find $f(x)$ using Newton's Divided Difference formula from the following table:

x	1	2	7	8
f(x)	1	5	5	4

4) If A , B and C are three mutually Exclusive and Exhaustive events and if $3 P(A) = 2 P(B) = 6 P(C)$ then find $P(A \cup B)$.

Q.4 Answer the following.

A. Solve the following system of equations using Gauss- Elimination method by Partial Pivoting. (05)

$$2x + 2y + z = 6, 4x + 2y + 3z = 4, x + y + z = 0$$

B. Solve system of linear equations using Gauss Seidel method.

$$10x - 5y - 2z = 3, 4x - 10y + 3z = -3, x + 6y + 10z = -3$$

(10)

OR

B. There are 100 misprints in a book of 100 pages. If a page is selected at random, find the probabilities that, (10)

- (1) there will be no misprints in the page
- (2) there will be 1 misprint
- (3) there will be at the most 2 misprints