

**F.Y.B.SC. (Computer Science) SEM –II (2014 COURSE) : WINTER -
2018**

SUBJECT : COMPUTER ORIENTED STATISTICAL TECHNIQUES – II

Day : Thursday
Date : 25/10/2018

W-2018-0952

Time : 03.00 PM TO 05.00 PM
Max. Marks : 40

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labelled diagram **WHEREVER** necessary.
- 4) Use of logarithmic tables, statistical tables, pocket calculator is **ALLOWED**.

Q. 1 Attempt **ANY TWO** of the following: **(10)**

- a) Write down the sample space for the following experiments. Also state the type of sample space:
 - i) number of attempts required to kill a cockroach,
 - ii) number of present persons out of 10 persons
- b) Discuss median and mode of the probability distribution of a discrete random variable (r.v.) X with illustration.
- c) For the following probability distribution of a discrete r.v. X find k , mean and variance of X .

X	0	1	2	3	4
$P[X = x]$	k	$3k$	$5k$	$2k$	k

Q. 2 Attempt **ANY TWO** of the following: **(10)**

- a) Define distribution function of a discrete r.v. X state its properties.
- b) A r.v. X takes values 0, 1, 2, 3, 4 such that
 $P(X \leq 1) = 0.25$, $P(X = 2) = 2P(X = 1)$, $P(X > 3) = 0.2$ and
 $P(0 < X \leq 2) = 0.45$. Find the probability distribution of X .
- c) If the probability that any person 65 years old will be dead with in a year is 0.05. Find the probability that out of a group of 7 such persons
 - i) exactly one
 - ii) at least one
 - iii) not more than one.

Q. 3 Attempt **ANY TWO** of the following: **(10)**

- a) State the important properties of normal distribution.
- b) Let $X \rightarrow P(m)$. If $P(X = 5) = \frac{3}{10} P(X = 4)$,
Find $P(X > 3)$ and $P(X = 0)$.
- c) Two hundred people were attacked by a disease and 180 survived. Can we say 85 % people survive if they are attacked by this disease at 5 % level of significance?

Q. 4 Attempt **ANY FIVE** of the following: **(10)**

- a) Define type I error and level of significance.
- b) Explain impossible event with illustration.
- c) Define continuous r.v and give one example of continuous r.v.
- d) Verify whether the following function is a probability mass function

$$P(x) = \frac{x+1}{2}, x = 0, 1, 2, 3$$

- e) For a r.v. X having probability distribution

$$P(x) = \frac{x^2}{30}, x = 0, 1, 2, 3, 4.$$

Find mean of X .

- f) If A and B are independent events with $P(A) = 0.5$, $P(B) = 0.4$,

Find $P(A \cap B)$.

- g) State the mean and variance of exponential distribution.

* * * * *