

**B. Tech. SEM -I (Computer Science & Business Systems) (CBCS 2018
Course) : SUMMER - 2019
SUBJECT: STATISTICS – I**

Day: Saturday
Date: 11/05/2019

S-2019-2514

Time: 10.00 AM To 01.00 PM
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

Q.1 What is primary and secondary data? (10)

OR

Q.1 Explain the importance of statistics in detail. (10)

Q.2 Calculate the Karl Pearson's coefficient of skewness from the following distribution (10)

| Class | 120-130 | 130-140 | 140-150 | 150-160 | 160-170 | 170-180 | 180-190 |
|-----------|---------|---------|---------|---------|---------|---------|---------|
| Frequency | 22 | 44 | 65 | 90 | 77 | 51 | 31 |

OR

Q.2 The number of runs scored by player X and Y in ten test matches are shown below: (10)

| | | | | | | | | | | |
|---|----|----|----|----|-----|----|----|-----|----|----|
| X | 7 | 20 | 60 | 76 | 102 | 90 | 16 | 119 | 20 | 16 |
| Y | 12 | 35 | 19 | 66 | 59 | 86 | 42 | 98 | 25 | 18 |

Find which player is more consistent?

Q.3 Explain sampling and its types. (10)

OR

Q.3 What is stratified random sampling? (10)

Q.4 Find the moment generating function of binomial distribution. (10)

OR

Q.4 If t is any positive real number, show that the function defined by (10)

$p(x) = e^{-t} (1 - e^{-t})^{x-1}$ can represent a probability function of a random variable

X assuming the values 1, 2, 3,.....

Find the value of $E(X)$ and $V(X)$ of the distribution.

P. T. O.

Q.5 a) An integer is chosen at random from 200 digits. What is the probability that integer is divisible 6 or 8? (05)

b) The probabilities of X, Y and Z becoming managers are $\frac{4}{9}$, $\frac{2}{9}$ and $\frac{1}{3}$ respectively. The probabilities that the bonus scheme will be introduced if X, Y and Z becomes manager are $\frac{3}{10}$, $\frac{1}{2}$ and $\frac{4}{5}$ respectively.

- i) what is the probability that bonus scheme will be introduced, and
- ii) if the bonus scheme has been introduced, what is the probability that the manager appointed was X?

OR

Q.5 From a vessel containing three white and five black balls, four balls are transferred into an empty vessel. From this vessel a ball is drawn and is found to be white. What is the probability that out of four balls transferred three are white and one is black? (10)

Q.6 Define chi-square distribution with n degrees of freedom. Also find the values of mean and variance. (10)

OR

Q.6 a) A box contains 100 transistors, 20 of which are defective, 10 are selected for inspection. What is the probability that (05)

- i) all 10 are defective
- ii) all 10 are good
- iii) at most 3 are defective

b) If X is a Poisson variate such that: (05)

$$p(x=2) = 9p(x=4) + 90p(x=6)$$

Find the mean and coefficient of skewness.

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