BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)

Computer Science & Business Systems

B. Tech. Sem - I :SUMMER : 2023

SUBJECT : STATISTICS, PROBABILITY & CALCULUS

Day : Thursday | Time : 10:00 AM-01:00 PM

Date : 11-05-2023 | S-24131-2023 | Max. Marks : 60

N.B. :

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Use of **CALCULATOR** is allowed.
4) Draw neat diagram **WHEREVER** necessary.

Q.1 What are the methods of collecting secondary data? **(10)**

OR

Q.1 What are the precautions while collecting primary data? **(10)**

Q.2 Draw a histogram and frequency curves from the following data **(10)**

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	12	18	26	20	16	6

OR

Q.2 The scores of two players A and B in 12 rounds are given below. Who is the better player and who is the more consistent player? **(10)**

A	74	75	78	72	78	77	79	81	79	76	72	71
B	87	84	80	88	89	85	86	82	82	79	86	80

Q.3 Find the expectation of the number on a die when thrown. **(10)**

OR

Q.3 Find the moment generating function of **(10)**

$$f(x)=\begin{cases} x & 0<x<1 \\ 2-x & 1\le x<2 \\ 0 & otherwise \end{cases}$$

Q.4 If the probability of a reaction from a certain injection is 0.01, determine the chance that out of 2000 individuals more than two will get a reaction. **(10)**

OR

Q.4 Determine the binomial distribution for which **(10)**
mean = 3 (variance) and mean + variance = 3. Also find $P(X \le 3)$

Q.5 Solve: $xy\left(1+xy^2\right)\frac{dy}{dx}=1$ **(10)**

OR

Q.5 Solve: $\frac{dz}{dx}+\frac{z}{x}\log z=\frac{z}{x}(\log z)^2$ **(10)**

Q.6 Solve: $\int_0^1 \int_x^{\sqrt{2-x^2}} \frac{x\,dxdy}{\sqrt{x^2+y^2}}$ **(10)**

OR

Q.6 Evaluate $\int_0^{\infty} \int_x^{\infty} \frac{e^{-y}}{y} dy\,dx$ **(10)**

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