QP CODE: 23800344

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Reg No : .....

Name : .....

INTEGRATED PG DEGREE EXAMINATION, DECEMBER 2023

Third Semester

INTEGRATED MSC COMPUTER SCIENCE- DATA SCIENCE

Complementary - ICSD3CM5 - PROBABILITY AND STATISTICS

2020 ADMISSION ONWARDS

4D2A63E2

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Explain discrete and continuous data.
2. Define interval scale.
3. Give two advantages of sampling over census.
4. Calculate 3rd decile using the following data. 30, 29, 29, 25, 14, 23, 21, 18, 15.
5. Mention any two merits and demerits of Standard deviation.
6. Define independent events.
7. Define random variable. Give an example.
8. Define conditional distribution.
9. what are the limits of correlation? what are your inferences when r=-1,0,1?
10. Define linear regression.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. What are the characteristics of statistics?
12. Explain stem and leaf chart.

13. A house wife uses 10 kg wheat, 20 kg fuel, 5kg sugar, 2kg oil. Price per kg of these items are respectively Rs.1.50, Rs.0.50, Rs.2.80 and Rs.10. Taking quantities used as weights find out the weighted arithemetic average of the prices.

14. Find the mean deviation from the median of the following data of salaries of 9 officers in a company. Rs.1500, Rs.1250, Rs.2000, Rs.1850, Rs.1000, Rs.1750, Rs.1300, Rs.1000, Rs.2000

15. Define Kurtosis given the 2nd, 3rd and 4th Central moments are 50, 100 and 6600. Find the measure of Kurtosis.

16. In an experiment a coin is tossed 5 times. Write down the sample space. How many points are there in the sample space.

17. Briefly explain the procedure involved in change of variable using Jacobian method

18. If X and Y are independent normal variates with mean 0 each and sd 9 and 12 respectively and if X+2Y and kX-Y are non correlated. Find k.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Create less than and greater than cumulative frequency tables by using the below table .

Class interval	0-20	20-40	40-60	60-80	80-100	100-120
Frequency	3	10	15	18	8	6

20. Calculate the various measures of skewness for the data given below.

Mid X	5	15	25	35	45	55	65	75	85
Frequency	15	20	25	24	12	31	61	12	50

21. prove the following a) P(A) + P(A') = 1 b) For any event A, 0

22. Ten competitors in a music competition were ranked by three judges in the following order.

judge I	1	6	5	10	3	2	4	9	7	8
judge II	3	5	8	4	7	10	2	1	6	9
judge III	6	4	9	8	1	2	3	10	5	7

Which pair of judges have the nearest liking to the same type of music?

(2×5=10 weightage)