SRI BHAGAWAN MAHAVEER JAIN COLLEGE Vishweshwarapuram, Bangalore. **Mock Question Paper** – January 2020	**Course:** I year PUC **Subject:** Statistics **Max. Marks:** 100 **Duration:** 3:15

Instructions:

i **All working steps should be clearly shown.**
ii **Scientific Calculators may be used**
iii **Statistical tables and graph sheets will be supplied on request.**

SECTION-A

I Answer any TEN of the following questions **10 x 1 = 10**

1. Define Statistics in singular sense.
2. Give an example for unpublished sources.
3. What is tabulation of data?
4. Define temporal classification.
5. Give an example for two dimensional diagram.
6. What is histogram?
7. If cov(X,Y)=0, then what is the nature of X and Y.
8. Name the distribution when β_2=9.712.
9. Product of two regression coefficient is +0.81.What is the value of correlation coefficient?
10. Mention one method of interpolation.
11. What is P (A^1) if P (A) = 4/52.
12. Find var(7).

SECTION-B

II Answer any TEN of the following questions **10 x 2 = 20**

13. Define a) discrete variable b) continuous variable.
14. Mention the stages of statistical enquiry.
15. Give a general format of a table.
16. Calculate relative frequency for the following data.

C.I	0-10	10-20	20-30	30-40
f	5	10	15	28

17. Write any two comparison of diagrams and graphs.
18. Mention the averages obtained by histogram and ogives.
19. Calculate relative measure of range for the following data.

C.I	10-20	20-30	30-40	40-50	50-60	60-70
f	5	8	19	5	29	3

20. For two numbers 4 and 4, show that A.M = G.M.
21. If r = 0.4, σ_x=12, σ_y=15 then find $b_{yx.}$
22. Mention the method of studying association.
23. Show that $0 \leq P(A) \leq 1$.
24. If $E(x^2) = 65$, E(x) = 4 find V(x).

SECTION-C

III Answer any EIGHT of the following questions **8 x 5 = 40**

25. Mention any five functions of Statistics.
26. Distinguish between census enumeration and sample survey.
27. Draft a blank table to show the distribution of employees of a factory according to
    (i) Sex: Male, Female.
    (ii) Category: skilled, unskilled.
    (iii) Wages: below -5000, 5000-10000, 10000-15000, above -15000.

28. From the following data construct pie-chart:

Faculty	Arts	Science	Commerce	Agriculture	Medicine	Total
No.of students	2500	1500	1250	800	1750	7800

OR

(For Visually challenged students)

Explain the procedure of drawing pie-chart.

29. Compute QD for the following distribution

Weight	10	20	30	40	50	60	70
No.of Candidates	25	12	17	8	5	3	15

30. Calculate the coefficient of correlation from the following data relating to overhead expenses and cost production.

Overhead (in'000 ₹)	80	90	100	110	120	130	140	150	160
Cost(in'000₹)	15	15	16	19	17	18	16	18	19

31. Calculate Spearman's rank correlation coefficient for the following data.

Statistics	100	98	85	90	90	84	88	90	93	95
Economics	50	61	70	63	67	80	80	75	70	68

32. Find the association between intelligence of fathers and intelligence of sons from the following data.
N=650
Intelligence father =250
Dull son=500
Intelligence father with dull son=200.

33. Using binomial expansion method, find the missing value from the following data.

Month	Jan	Feb	March	April	May	June
Values	6	10	12	16	-	24

34. A firm want to select three clerks among 3 graduates, 15 undergraduates and 8 matriculates. What is the probability of selecting
    1. One graduate and two matriculates
    2. Two undergraduate and one matriculate.

35. State and prove addition theorem of probability of two non-mutually exclusive events.

36. State and prove multiplication theorem of expectation for two independent random variables X and Y.

SECTION-D

IV Answer any TWO of the following questions **10 x 2 = 20**

37. During the 10 weeks of a session the marks obtained by two students A and B taking the statistics courses are given below.

Student A	58	59	60	54	65	66	52	75	69	52
Student B	87	89	78	71	73	84	65	66	56	46

Find (i) Who is the better scorer? (ii) Who is more variable student?

38. Calculate the coefficient of skewness from the following data using quartiles.

Marks (above)	0	15	30	45	60	75	90
No.of students	180	160	130	100	65	20	5

39. The following data relating to purchase and sales, obtain the two regression equations,

Purchase	62	72	98	76	81	56	76	92	88	49
Sales	112	124	131	117	132	96	120	136	97	85

And also i) Estimate the value of purchase when sales is 140.
ii) Estimate the value of sales when purchase is 100.

40. a) A can hit a target 2 times with 5 shots, B can hit it 3 times with 4 shots and C can hit it 5 times with 8 shots. If they fire at a volley, what is the probability that
(i) At least one of them hit.
(ii) None of them hit

b) A player tosses two fair coins. He wins ₹5 if 2 head occur, ₹2 if one head occurs and ₹1 if no head occurs.
(i) Find his expected gain.
(ii) How much should he pay to play the game if it is to be fair?

SECTION-E
(Practical Oriented Questions)

V Answer any Two of the following questions. **5 x 2 = 10**

40. The following are the weights in kilograms of a group of 30 students.

12 36 40 10 16 19 20 28 30 46
65 27 67 21 29 45 35 32 39 60
26 37 59 20 30 37 17 51 55 63

Prepare a frequency table using inclusive class interval of width 10kg.

41. Draw an ogive and locate median.

Monthly income (in'00₹)	65-75	75-85	85-95	95-105	105-115	115-125	125-135
No.of families	60	170	200	60	50	40	20

OR

(For Visually challenged students)

Explain the procedure of drawing an ogive.

42. Calculate D_8 and P_{47} for the following data.

Profit (in'000₹)	<20	20-30	30-40	40-50	50-60	60-70	70-80	>80
No.of book depots	2	5	9	13	20	11	8	2

43. Find the value of k and then find the mean and variance for the following data.

x	1	2	3	4	5	6
p(x)	0.1	0.15	k	0.25	0.18	0.12

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