



JAIN COLLEGE

463/465, 18th Main Road, SS Royal, 80 Feet Road, Rajarajeshwari Nagar,
Bangalore - 560 098

Date:

SUBJECT: STATISTICS

**I PUC
MOCK PAPER**

Timings Allowed: 3Hrs 15 Minutes.

Total Marks: 100

Instructions:

1. Graph sheets and statistical tables will be provided on request.
2. Scientific calculators may be used
3. All working steps should be clearly shown

SECTION-A

I. Answer all the following questions.

10×1=10

1. State Boddington's definition of Statistics.
2. Who is an investigator?
3. Write down the general format of a table?
4. Write the formula for calculating width of the class.
5. Name the graph used to locate median.
6. Write the limitation of a graph.
7. For a distribution if $M=50$ then find D_5 .
8. Find Geometric mean of 2 and 8.
9. Give one example for negative correlation.
10. What is Extrapolation?
11. Write the sample space when two fair coins are tossed twice.
12. If $E(x)=3$, find $E(10x)$.

SECTION-B

II. Answer all of the following questions.

10×2=20

13. Mention the two causes of distrust of Statistics.
14. Mention two methods of sampling.
15. What is chronological classification? Give one example.
16. What are captions and stubs of a table?
17. Mention two objectives of diagrams and graphs.
18. What is Histogram?
19. The sum of the upper and lower quartile is 90 and their difference is 30. Find coefficient of quartile deviation.
20. The mean age of a group of 50 students is 15 years and the mean age of another group of 70 students is 20 years. Find the mean age of 120 students together.
21. Given mean of x and y series are 30 and 35 and $b_{xy}=0.75$. Write the regression equation of x on y.
22. Find the remaining frequencies if $N=100$, $a\beta=40$, $A\beta=25$, $[A]=60$.
23. Show that $P(A)+P(A^c)=1$.
24. If $E(x)=10$ and $SD(x)=12$, Find $E(x^2)$.

SECTION-C

III. Answer all of the following questions.

8×5=40

25. What is the role of Statistics in Business, Commerce and Economics?
26. What is primary data? Explain any two methods of collecting primary data.
27. Draft a blank table to present the data relating to the college students classified according to
- i) Sex: Male, Female
 - ii) Faculty: Arts, Commerce, Science
 - iii) Class: I PUC, II PUC.
28. Percentage break-up of the cost of construction of a house in Bangalore is given below. Construct a Pie diagram.
Labour: 20%, Bricks: 12%, Cement: 20%, Steel: 15%, wood: 13%,
Supervision: 15%, Other expenses: 5%
29. For the following observations find Mean, Median, Mode.
12, 42, 25, 35, 67, 25, 35, 67, 25, 56, 5, 75
30. Explain types of correlation with examples.
31. Calculate Karl Pearson's coefficient of correlation between x and y.
32. Calculate Yule's coefficient of association between marriage and failure of students for the following data pertaining to 525 students and comment.

	Passed	Failed
Married	90	65
Unmarried	260	110

33. Using Binomial Expansion method, estimate the production (in tons) in 2010.

year	2008	2009	2010	2011	2012
Production (in tons)	15	20	-	27	30

34. State and prove addition theorem of probability for two non-mutually exclusive events.
35. An urn contains 2 bags. The first bag contains 3 red and 2 green balls, the second bag contains 4 red and 3 green balls. One bag is selected at random and then a ball is drawn from it. Find the probability that it is a red ball.
36. If 'X' is a random variable and 'a' is a constant then prove that
- i) $E(ax) = aE(x)$
 - ii) $V(ax) = a^2V(x)$

SECTION-D

IV. Answer all of the following questions.

2×10=20

37. Following data gives marks of 2 students in Statistics.

Student A	30	35	36	32	38	40
Student B	42	21	19	36	35	29

- Find i) Who is better Scorer?
ii) Who is more consistent?

38. Find Bowley's coefficient of skewness for the following data and write your conclusion

I.Q. of children	60-70	70-80	80-90	90-100	100-110
No. of children	3	7	10	22	18

39. Calculate Karl Pearson's coefficient of correlation

	Y	0	1	2	3
x					
20-25	30	—	—	—	—
25-30	8	22	16	4	
30-35	4	—	5	3	
35-40	—	2	5	1	

40.a) The probability of 2 persons A and B solving problems are $\frac{1}{2}$ and $\frac{2}{3}$. If both of them independently try to solve, what is the probability that the problem is solved?

b) A person enters into competition of hitting a target. If he hits the target he gets 10Rs. Otherwise he has to pay 5Rs. If the probability of his hitting the target is $\frac{3}{10}$, find his expectation.

SECTION-E

V. Answer all of the following questions.

2×5=10

41. Construct continuous frequency distribution with exclusive C-I of width 10 each. Number of news papers distributed in different days.

25, 13, 18, 22, 36, 12, 16, 0, 6, 17, 48, 32, 26, 4, 10, 35, 26, 3, 15, 20.

42. Draw less than ogive for the following distribution

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	5	11	21	16	10

43. The mean of the following distribution is 23.18. Find missing frequency

C-I	0-10	10-20	20-30	30-40	40-50
f	3	5	9	—	2

44. For the following probability distribution find i) $E(2x-4)$ ii) $\text{Var}(x)$

x	-2	0	1	2
p(x)	0.2	0.4	0.3	0.1