JAIN COLLEGE, J C Road Bangalore
Mock Paper January - 2016
I PUC – Statistics (31)

Time: 3 Hours 15 Minutes **Max. Marks:100**

I. Answer any 10 of the following questions. 10 × 1 = 10

1 Define and explain the word 'statistics'.
2 Define sampling and classify.
3 Mention the graphs used to find mode and median graphically.
4 Define Frequency Density with formula.
5 What is Dicotomy in frequency table?
6 Write a need for tabulation in presentation of statistical data.
7 If the product of two numbers is 36, then find the Geometric mean.
8 Which of the following represents median?
(a) second quartile (b) fiftieth decile (c) fiftieth percentile (d) sixth decile.
9 What is the relation between regression coefficient and the coefficient correlation?
10 Write one assumption in Binomial method of interpretation.
11 Define mutually exclusive events in probability.
12 Define the mean of a Random variable.

SECTION B

II. Answer any 10 of the following questions 10 × 2 = 20

13. Write any two functions of statistics.
14. Distinguish between absolute and relative error.
15. What are called the difference between the upper and lower limit of class and the average of the upper and lower limits?
16. What do you mean by inclusive class interval? Give an example.
17. With the help of histogram which more types of curves we can draw.
18. Which type of bar diagrams are used under the following circumstances
(a) when two or more different comparable set of values.
(b) when a comparison of two or more components as percentages.
19. The mean age of a group of 50 students is 15 yrs and the mean age of another group of 70 students is 20yrs find the mean age of all the 120 students together.
20. The first four central moments are 0, 20, -50 and 100 comment of skewness and kurtosis.
21. The coefficient of correlation between two variable x and y is 0.65, their covariance is 2.32. The variance of x is 18. Find the standard deviation of y.
22. What are frequencies of first order and second order? Mention them with their notations.
23. Define classical approach of probability
24. Prove that $Var(ax+b)=a^2Var(x)$.

SECTION C

III. Answer any eight questions. 8 × 5 = 40

25. What is the role of statistics in Business and Economics
26. Mention the differences between direct personal survey method and indirect investigation method.
27. Following are the weights in (Kgs) of 40 students of a college. Prepare a continuous frequency distribution table with suitable class interval.

45	56	50	41	55	51	46	50	45	57	64	48	53	43	63	45	57	44
54	59	49	52	42	61	51	63	48	56	45	50	55	50				

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. Caluculate quartiles for the following data

X	10	15	20	25	30	35	40	45	50	55
F	3	5	9	15	12	10	5	3	2	7

30. Draw a scatter diagram to correlation exists between the variables from the following data:

X	6	12	18	15	21	22	23
F	4	10	12	13	18	20	15

31. Find the Pearson's co-efficient of correlation for the following data.

Age of husbands(in years)	22	24	26	28	30	31	33
Age of wife's(in years)	19	21	23	24	26	28	30

32. Following is the table regarding the eye colour of father and eye of colour of their son's. Test whether colour of son's eye is associated with that of father.

Eye colour of father	Eye colour of son	
	Cat's eye	No Cat's eye
Cat's eye	94	30
No Cat's eye	104	36

33. From the following data interpolate the missing sales of a firm.

Years	2006	2007	2008	2009	2010	2011	2012
Production	12	14	17	20	23	-	34

34. State and prove multiplication theorem of probability for two independent events.
35. A box contains 5 milkybar chocolates, 6 kitkat, 3 dairy milk. 2 chocolates are drawn at random from the box. Find the probability that (i)both are milkybar (ii)1 kitkat and 1 dairy milk (iii) both are same type.
36. A person enters into a competition of hitting a target. If he hits the target, he gets 10 rupees. Otherwise, he has to pay 5 rupees. If the probability of not hitting the target is 3/10. Find his expectation and standard deviation.

SECTION D

IV. Answer any two of the following questions. 2 × 10 = 20

37. From the following frequency distribution find the co-efficient of variation and comment.

Marks	0-10	10-20	20-30	30-40	40-50
No.of students	5	12	25	10	8

38. Find Pearson's coefficient of skewness for the following data and comment.

C.I	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
F	10	40	20	0	10	40	16	14

39. For the following data :
    (a) Calculate two regression equations
    (b) Estimate the value of X when y=30.
    (c) Determine the value of correlation coefficient using regression coefficients.

X	10	14	16	24	26
y	5	6	7	9	13

40. (a) A bag has 3 red and 2 green marbles.2 marbles are drawn at random. Find the probability that they are of (i) same colour (ii) different colour.
    (b)for the following joint probability distribution of x and y find k and the coefficient of correlation.

x \ y	-1	0	1
2	0.2	0	0.4
4	0.1	0.1	k

SECTION E

V. Answer any two of the following. 2 × 5 = 10

41. In a survey regarding men smoking habit and visiting hospital due to some ailment in the college, the following information was observed.
    Out of 30 office staff 50% were smokers and 25% out of 48 teaching staff were smokers. 25% among smokers and 8% among non-smokers visited hospital in the year. Tabulate the above information.
42. For the following distribution draw the frequency polygon and frequency curve on a same graph.

C.I	10-20	20-30	30-40	40-50	50-60	60-70	70-80
F	2	5	12	9	5	3	2

43. For the following data compute mean deviation from median.

C.I	0-20	20-40	40-60	60-80	80-100
F	2	7	15	10	6

44. (a) The probability that a husband and a wife surviving for20 more years are 0.8 and 0.9. Find the probability of that after 20 years (i) both of them are alive (ii) at least one of them is alive.
    (b) A dice is thrown once. Find the probability of the numbers obtained on the faces of a dice.