VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
MCA I Year II - Semester (Main/Backlog) Examinations, June/July- 2016
Probability and Statistics

Time: **3** hours

Max. Marks: **70**

Note: Answer ALL questions in Part-A and any FIVE questions from Part-B

Part-A (10 X 2=20 Marks)

1. Distinguish between classification and tabulation of data.

2. Write the different types of diagrams for presentation of data.

3. State the multiplication theorem on probability.

4. Show that Additive property holds for Poisson distribution.

5. Write the probability function for Normal Distribution.

6. Write the Beta Distribution of First type and Second type.

7. Define Mathematical Expectation of a random variable.

8. What are absolute measures? Define them.

9. Define Regression and write the line of regression of X on Y.

10. What are the applications of t distribution?

Part-B (5 X 10=50 Marks)

11. a) The monthly profits in rupees of 100 shops distributed as follows. Represent the data by graph. [5]

Profit per shop	0-100	100-200	200-300	300-400	400-500	500-600
No. of Shops	12	18	27	20	17	6

b) Compare between the histogram and frequency Polygon. [5]

12. a) Give the mathematical and statistical definition of probability. [4]

b) In a Binomial Distribution committee of five independent trials, probability of 1 and 2 successes are 0.4096 and 0.2048. Find the parameter 'p' of the distribution. [6]

13. a) Write the relation between Gamma and Beta Distribution. [4]

b) The customer accounts at a certain departmental store have an average balance of Rs. 480 and a s.d of Rs. 160. Assuming that the account balances are normally distributed. Find the proportion of accounts is over Rs. 600 and the proportion of accounts is between Rs. 400 and Rs. 600. [6]

14. a) The first four moments about the value 4 are -1.5, 17, -30 and 108. Find: [6]
i) Co-efficient of Variation   ii) β_1 iii) Find the first three moments about origin.

b) Examine whether the following results of a piece of computation for obtaining second central moment are consistent or not. N =120, Σ fx = -125 , Σ fx^2 = 128. [4]

15. a) Calculate the co-efficient of correlation to the following data: [5]

X	1	2	3	4	5	6	7	8	9
Y	9	8	10	12	11	13	14	16	15

   b) A survey amongst women was conducted to study the family life. The observations are   [5]
   as follows:

Education	Family Life	
	Happy	Not Happy
Educated	70	30
Not Educated	60	40

   Test whether there is any association between family life and education.

16. a) What is primary data? What are the methods to collect primary data? Explain any two   [6]
   methods with examples.

   b) Five men in a company of 20 are graduates. If 3 men are picked up at random, what is   [4]
   the probability that they are graduates? What is the probability that at least one is a
   graduate?

17.   Answer any **two** of the following:

   a) Find the moment generating function of Gamma distribution.   [5]

   b) The first four central moments of a distribution are 0, 205, 0.7 and 18.75. Test the   [5]
   skewness and kurtosis of the distribution.

   c) Find the mean values of the variables X and Y and correlation coefficient between them   [5]
   from the following regression lines: $2y-x-50 = 0$ and $3y-2x-10 = 0$.

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