C. ABDUL HAKEEM COLLEGE (AUTONOMOUS),
MELVISHARAM - 632 509.
SEMESTER EXAMINATIONS, NOVEMBER - 2018

M.COM., COMMERCE **SEMESTER I**

P18MCM104 – STATISTICAL ANALYSIS

Time: Three Hours Maximum: 75 Marks

SECTION - A (5 X 6 = 30 Marks)

Answer **ALL** Questions.

1. a) To study the correlation between the weight and height of the students of a College, a sample of 100 is taken from the universe. The sample study gives the coefficient of correlation between two variables as 0.9 within what limits does it hold good for the universe.

(Or)

b) Given the following data calculate the expected value of Y when X=12.

	X	Y
Average	7.6	14.8
Standard Error	3.6	2.5
r=0.99		

2. a) Two students X and Y work independently on a problem. The probability that X will solve it is 3/4 and the probability that Y will solve it is 2/3. What is the probability that the problem will be solved.

(Or)

b) Four coins are tossed simultaneously.

What is the probability of getting

a) 2 heads and 2 tails b) at least two heads c) at least one head.

3. a) Explain the procedure of testing of hypothesis.

(Or)

b) What are essentials of Sampling?

4. a) What are the uses of Chi-square test?

(Or)

b) What are the steps involved in the χ^2 test of goodness of fit?

5. a) From the following data find the variance within sample under the direct method.

Sample Data

A	B	C	D
18	22	14	25
16	15	13	30
14	13	18	12
	14	16	28
		14	17
			20

(Or)

b) In a sample of 12 observations the sum of the squared deviations of items from their mean was 110 and in another sample of 10 observations the said value was found to be 72.

Test the significance of the difference in the variance of the two samples at 5% level given that

(i) $F_{0.05}$=2.95 where V_1=12 and V_2=10.

(ii) $F_{0.05}$=3.10 where V_1=11 and V_2=9.

SECTION - B (3 X 15=45 Marks)

Answer **ANY THREE** Questions

6. From the following data relating to the marks secured by a batch of candidates ascertain the rank co-efficient of correlation and interpret the results.

Candidates	A	B	C	D	E	F	G	H	I	J
Marks in English	50	40	50	35	37	18	30	22	15	5
Marks in Economics	58	60	48	50	30	32	45	37	42	52
Marks in Commerce	70	68	75	40	80	50	30	85	25	90

7. Box I contain three defective and seven non-defective balls and Box II contains one defective and non-defective balls. We select a box at random and then draw one ball at random from the box.

   i. What is the probability of drawing a non-defective ball?
   ii. What is the probability of drawing a defective ball?
   iii. What is the probability that box I was chosen, given a defective ball is drawn?

8. A machine puts out 16 imperfect articles in a sample of 500.After the machine is overhauled, it puts out 3 imperfect articles in a batch of 100.Has the machine improved.

9. Fit a Poisson distribution to the following data and ascertain, if the observed frequencies are consistent with the Poisson distribution at 5% level of significance of the x^2 test.

No. of. defects	5	4	3	2	1	0
No. of. Units	1	1	2	10	70	616

10. From the following two samples taken at random from two normal populations, verify whether they have the same variance at 5% level or not.

Sample I	87	85	82	76	74	71	65	60		
Sample II	91	88	86	85	63	78	85	67	66	61

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