

- (b) 3 samples below have been obtained from normal population with equal variance. Test the hypothesis that the sample means are equal :

8	7	12
10	5	9
7	10	13
14	9	12
11	9	14

Table value of  $F$  at 5% level of significance for  $v_1 = 2$  and  $v_2 = 12$  is 3.88.

10. (a)  $r_{12} = .5$ ;  $r_{13} = .6$   $r_{23} = .7$ , calculate multiple correlation coefficients.

- (i) R 1.23  
(ii) R 2.13 and  
(iii) R 3.12.

Or

- (b) Write multiple regression equations.
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S.No. 607

12PCM07

(For the candidates admitted from 2012-2013 onwards)

M.Com. DEGREE EXAMINATION, NOVEMBER 2017.

Second Semester

ADVANCED BUSINESS STATISTICS

Time : Three hours

Maximum : 75 marks

PART A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) What is the scope of Statistics?

Or

- (b) Mean = 70.2 ; Mode = 70.5, find median.

2. (a) 8 coins are thrown simultaneously what is the probability of getting atleast 6 heads?

Or

- (b) What is the probability of getting neither a total 7 or 11, when a pair of dice is thrown?

3. (a) If population standard deviation is 1.5, how range a sample should be chosen so as to allow an error by t most 0.25 with probability 0.95?

Or

- (b) In a random sample of 1000 homes in a city. It is found that 628 use gas stores. Find 98% confidence interval for the fraction of homes in this city that use gas stores ( $Z_{0.02} = 2.33$ ).

4. (a) Write a specimen of contingency table.

Or

- (b) Define :  
(i) one tailed tests and (ii) two tailed tests.

5. (a) Write types of correlation.

Or

- (b)  $n = 10, r = .856, \sigma_y = 5.54$  ; find the standard error of estimate of Y on X.

PART B — (5 × 10 = 50 marks)

Answer ALL questions.

6. (a) Calculate mean and median :  
C.I.: 0-4 4-8 8-12 12-16 16-20 20-24  
f: 5 50 100 60 20 15

Or

- (b) Specify the merits of SPSS.

7. (a) If  $P(A) = \frac{3}{8}$ ;  $P(B) = \frac{5}{8}$  and  $P(A \cup B) = \frac{3}{4}$ .

Find  $P\left(\frac{A}{B}\right)$  and  $P\left(\frac{B}{A}\right)$ . Are the events independent?

Or

- (b) A poisson distribution is given by  $P(X) = \frac{(0.72)^x e^{-.72}}{x!}$ , find (i)  $P(0)$  (ii)  $P(1)$  (iii)  $P(2)$  and (iv)  $P(3)$  ( $e^{-.72} = .4868$ ).

8. (a) What are the properties of 't' distribution?

Or

- (b) A random sample size 16 has 53 as means. The sum of squares of the derivations taken from mean is 135. Can this sample be regarded as taken from the population having 56 as mean? Obtain 95% and 99% confidence limits of the mean of population (for  $\nu = 15$   $t_{0.05} = 2.13$  for  $\nu = 15$   $t_{0.01} = 2.95$ ).

9. (a) Out of 8000 graduates in a town 800 are females. Out of 1600 graduate employees, 120 are female. Use  $\chi^2$  test to determine if any destination is made in appointment on the basis of sex. (value  $Y^2$  for 5% d.f = 3.84)

Or