

# Fakir Chand College

## B.com Part-1 (Honours/ General/Major) Examination 2020

### Subject: Business Mathematics and Statistics

Paper Code:C15G

Full Marks:100

Answer any 5

1.a) How many words can be made using all the letters in the word MONDAY? How many of them begin with M and do not end with Y? 10

b) How many 4 digit numbers can be formed from the digits 1,1,2,2,3,3,4,5? 10

2.a) Let the sets A and B be given by,  $A = \{1,2,3,4\}$ ,  $B = \{2,4,6,8,10\}$  and the universal set  $U = \{1,2,3,4,5,6,7,8,9,10\}$ . Find  $(A \cup B)$  and  $(A \cap B)$ . 10

b) Expand the following binomial expression:  
 $(2+5x)^7$  10

3.a) Prove that  $7\log\frac{10}{9} + 3\log\frac{81}{80} = 2\log\frac{25}{24} + \log 2$  10

b) Find the sum of the Geometric series  
 $3-9+27-81+\dots$  up to 8 terms 10

4.a) Find the correlation coefficient between x and y when variance of x is 2.25, variance of y is 1 and covariance of x and y is 0.9. 10

b) If  $r=0.4$ ,  $\text{Cov}(x,y)=10$  and  $\sigma_y=5$ , then find  $\sigma_x$ . 10

5.a) Find the regression equation of Y on X from the following data:  
 $b_{yx}=1.5$ ,  $\bar{x}=5$ ,  $\bar{y}=7$  10

b) The regression equation of y on x is  $3x-4y+61=0$ . If the AM of Y be 52, find the AM of X. 10

6. The following series of observations is known to have a business cycle with a period of 4 Years. Find the trend values by the moving average method:

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Production ('000 tons)	506	620	1036	673	588	696	1116	738	663	773	1189