PARUL UNIVERSITY
FACULTY OF COMMERCE
M.Com.(Hons) Winter 2017 – 18 Examination

Semester: 3   Date: 13/12/2017
Subject Code: 16201205   Time: 10.30 am to 1.00 pm
Subject Name: Quantitative Techniques for Financial Decision   Total Marks: 60

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as directed.
Q.1.A) Choose the correct answer   (06)
1. If two lines are parallel to each other, then the corresponding system of equation has _____
    a) two solution   b) unique solution
    c) no solutions   d) infinite solutions
2. The observation which is repeated most is known as _____
    a) Geometric Mean   b) Median
    c) Arithmetic Mean   d) Mode
3. Two events A and B are mutually exclusive then $p(A \cup B) =$_____
    a) $p(A) + p(B) - p(A)p(B)$ b) $p(A) + p(B)$
    c) $p(A)p(B)$ d) 0
4. If $b_{yx} = -0.25 = b_{xy}$ then the correlation coefficient $r =$_____
    a) -0.625 b) -0.5
    c) -0.25 d) 0.25
5. If the value of correlation coefficient is 1, we say that there is _____ between the variables.
    a) perfect correlation   b) no correlation
    c) defective correlation   d) reciprocal correlation
6. $\frac{d}{dx}\left(\log \frac{2x-4}{3x-6}\right) =$ _____
    a) $\log \frac{2}{3}$ b) $\frac{3x-6}{2x-4}$
    c) $\frac{3}{2}$ d) 0

B) Answer the following.   (06)
1. $\log(a - b) = \frac{\log a}{\log b}$ [True / False]
2. $p(A) = 0.6, p(B) = 0.4$ and $p(A \cap B) = 0.3$ then find $P(A/B)$?
3. Write the equation of line of regression of y on t.
4. If $b_{xy} = 0.3, \bar{x} = 100, \bar{y} = 9$ then for $y = 25,\ x =$?
5. Find $\int 2 \sin x\ dx$
6. If $z = 2x^3 + 3e^y$ then $\frac{\partial z}{\partial y} = ?$

Q.2 Answer the following.   (12)
1. (i) Solve the following system using addition:
$$2x + 3y = 1$$
$$x + 2y = 1$$
    (ii) Solve graphically: $x + 2y = 3;\ \ 2x + y = 3$
2. A card is drawn from a pack of well- shuffled cards. Find the probability of the following events.
    (i)   The card drawn is a spade.
    (ii)   The card drawn is a king.
    (iii) The card drawn is a face card.
    (iv) The card drawn is not a club.
3. Discuss any one of the methods to create a decision tree.

Q.3 Answer the following.   (Any Three)   (18)

1. Find S.D. for the distribution giving 300 cars according to their selling days.

$Days$	$0-30$	$30-60$	$60-90$	$90-120$	$120-150$	$150-180$	$180-210$
$Cars$	9	17	43	82	81	44	24

2. The Probability distribution of random variable X is given below.

x	-2	-1	0	1	2
$P(x)$	0.2	0.1	0.3	0.3	0.1

   Find (i) $E(x)$ (ii) $V(x)$ (iii) $E(2x-3)$ (iv) $V(2x-3)$

3. Find the rank coefficient for following data:

x	12	10	17	14	13	18	20
y	110	210	108	135	160	104	70

4. Differentiate : (i) $y = e^{3x}\cos 2x$ (ii) $y = 3x^2 + \log x - \tan x$

Q.4 Answer the following.   (Any two)   (18)

1 a) The following are data regarding the heights (y) and weights (x) of 100 college students:
      $\sum x = 15000, \sum x^2 = 2272500, \sum xy = 1022250 \sum y = 6800, \sum y^2 = 463025$ Find
      the equations of regression of height and weight.

   b) Integrate $y = x^2 \cos 2x$

2. Find the mean, median and mode of the following data:

Class	10-19	20-29	30-39	40-49	50-59
f_i	2	9	15	14	10

3. a) An unbiased coin is tossed 6 times. Using binomial distribution, find the probability of
       getting (i) exactly 4 heads (ii) at least 4 heads.

   b) The variate X has a Poisson distribution and is given that $P(X = 2) = 0.25$ and $P(X = 3) = 0.125$. Using the recurrence relation $P(x + 1) = \frac{\lambda}{x+1}p(x)$ find λ.
       Also, Find $P(X = 0), P(X = 1)$ and $P(X < 3)$.