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# PARUL UNIVERSITY <br> FACULTY OF COMMERCE <br> M.Com. (Hons) Winter 2019-20 Examination 

Date: 29/11/2019
Semester: 3
Subject Code: 16201205
Subject Name: Quantitative Techniques for Financial Decision
Time: 10:30am to 01:00pm
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:

A) Multiple choice questions: (Each of one mark)
1.

If Mean $(\bar{X})=3$ and Mode $(Z)=3$ then Median $(\mathrm{M})=$ $\qquad$ ?
(a) 0
(b) -3
(c) 3
(d) None of these
2. The mode of the following data is $\qquad$ .

| $x_{i}$ | 0 | 1 | 2 | 3 | 4 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $f_{i}$ | 12 | 20 | 10 | 6 | 2 |

(a) 10
(b) 20
(c)10
(d) 6
3. The coefficient of correlation $r=$ $\qquad$ .
(a) $\pm \sqrt{b_{y x}+b_{x y}}$
(b) $\pm \sqrt{b_{y x} * b_{x y}}$
(c) $\pm \sqrt{b_{y x}-b_{x y}}$
(d) $b_{y x} * b_{x y}$
4. The value of $\int 5 \sqrt{\lambda} \cdot \mathrm{~d} \lambda=$ $\qquad$ —.
(a) $\frac{10 \sqrt{\lambda^{3}}}{3}+\mathrm{k}$
(b) $\frac{12 \sqrt{\lambda^{3}}}{3}+\mathrm{k}$
(c) $\frac{10 \sqrt{\lambda^{3}}}{4}+\mathrm{k}$
(d) $\frac{9 \sqrt{\lambda^{3}}}{2}+\mathrm{k}$
5. $\int_{0}^{1} x^{2} d x=$ $\qquad$ .
(a) $\frac{1}{2}$
(b) $\frac{1}{3}$
(c) $\frac{1}{4}$
(d) None of these
6. Mean of $2,2,3,4,4$ is $\qquad$ -
(a) 3
(b) 2
(c) 6
(d) 15
B) Do as directed: (Each of one mark)

1. Define: Expected Monetary Value
2. A fair dice is thrown. Find the probability of getting an even number?
3. Define: Simple random sampling.
4. Spearman's rank correlation coefficient r= $\qquad$ .
5. Define: Correlation
6. The Normal distribution is a $\qquad$ shaped curve.
Q. 2 Do as directed: (Each of 04 mark)
7. Find the mode of the following:

| Class | $0-10$ | $10-20$ | $20-30$ | $30-40$ | $40-50$ | $50-60$ | $60-70$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $f_{i}$ | 5 | 9 | 11 | 13 | 10 | 7 | 2 |

2. Write Merits and Demerits of Sampling.
3. (i) Write the cumulative frequency.

| X | 79 | 59 | 65 | 40 | 64 | 52 | 53 | 57 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| f | 3 | 4 | 5 | 7 | 4 | 8 | 6 | 3 |

(ii) Evaluate $\int x \cdot \sin x d x$
Q. 3 Answer the following: (Any Three)

1. Find the variance and the standard deviation.

| X | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| F | 3 | 6 | 9 | 13 | 8 | 5 | 4 |

2. The following data regarding the heights (y) and weights ( x ) of 100 college students are given: $\sum x=15000, \sum x^{2}=2272500, \sum x y=1022250, \sum y=6800, \sum y^{2}=463025$ Find the coefficient of correlation between height and weight and also the equation of regression of height and weight.
3. For the following pay-off matrix find the best act using (i) Maximin principle (ii) Maximax principle (iii) Laplace principle

| Event | Act |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | $A_{1}$ | $A_{2}$ | $A_{3}$ | $A_{4}$ | $A_{5}$ |
| $S_{1}$ | 10 | 25 | 10 | 15 | 20 |
| $S_{2}$ | -5 | 10 | -5 | 10 | -5 |
| $S_{3}$ | 15 | 5 | 10 | 10 | 10 |

4. (i) A card is drawn from a pack of well-shuffled cards. Find the probability of following events:
A] The card drawn is a spade.
B] The card drawn is a king.
C] The card drawn is a face card.
D] The card drawn is not a club.
(ii) Three unbiased coins are tossed. Find the probability of getting
A] exactly 2 heads
B] at least one tail

## Q. 4 Answer the following: (Any two)

1. (a) The mean and standard deviation of a Binomial distribution are 5 and 2.

Determine the distribution.
(b) If the mean of a Poisson variable is 1.8 , find (i) $\mathrm{P}(\mathrm{x}>1)$
(ii) $\mathrm{P}(0<x<5)$ if $e^{-1.8}=0.165$
2. (a) Find the Coefficient of rank correlation of the following data:

| $x$ | 35 | 40 | 42 | 43 | 40 | 53 | 54 | 49 | 41 | 55 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $y$ | 102 | 101 | 97 | 98 | 38 | 101 | 97 | 92 | 95 | 95 |

(b) Explain: Positive correlation, Negative correlation, Simple correlation, Multiple correlation
3. (a) Represent the following problem by decision tree and decide the best act from minimum cost.

| State of nature | Probability of fire | To take insurance | Not to take insurance |
| :--- | :--- | :--- | :--- |
| Fire during a year | 0.01 | Rs. 100 | Rs. 8000 |
| No fire during a year | 0.99 | Rs. 100 | Rs. 0 |

(b) Find (i) $\frac{d}{d x}\left(x^{3} \cdot \sin x\right)$ (ii) $\int\left(3 x^{2}+5 x-7\right) d x$

