

Seat No: \_\_\_\_\_

Enrolment No \_\_\_\_\_

**PARUL UNIVERSITY**  
**FACULTY OF COMMERCE**  
**M.Com.(Hons), Winter 2018 – 19 Examination**

**Semester: 3**

**Date: 01/11/2018**

**Subject Code: 16201205**

**Time: 10:30am to 1:00pm**

**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.**

**A) Multiple choice type questions. (Each of one mark) 6 Marks**

1. The relation between the measures of central tendency is (between mean, median and mode)
  - a)  $Z = 2M - 3\bar{X}$
  - b)  $Z = 3M - 2\bar{X}$
  - c)  $M = 3\bar{X} + 2Z$
  - d)  $M = 3\bar{X} - 2Z$
  
2. Range of Probability of any Event E is
  - a)  $P(E) \geq 1$
  - b)  $P(E) \leq 0$
  - c)  $0 \leq P(E) \leq 1$
  - d) None of the above
  
3. Law of Addition of Probability is
  - a)  $P(A \cap B) = P(A)P(B)$
  - b)  $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
  - c)  $P(A \cap B) = P(A) + P(B)$
  - d)  $P(A \cup B) = P(A) + P(B) + P(A \cap B)$
  
4. \_\_\_\_\_ is a measure of the degree of relatedness of variables.
  - a) Parameter
  - b) Correlation
  - c) Dispersion
  - d) Regression
  
5. Lowest level of data measurement is
  - a) Ratio
  - b) Ordinal
  - c) Nominal
  - d) Interval
  
6. Differentiation of  $\sin x$  is
  - a)  $\cos x$
  - b)  $-\cos x$
  - c) 0
  - d) 1

**B) Definitions/ One-Liners/ Terms 6 Marks**

- 1) Derivative of  $x^n$  (i.e.,  $\frac{d}{dx}(x^n)$ ) = \_\_\_\_\_
- 2) Derivative of  $\log x$  (i.e.,  $\frac{d}{dx} \log x$ ) = \_\_\_\_\_
- 3) Integration of exponential of x (i.e.,  $\int e^x dx$ ) = \_\_\_\_\_
- 4) Integration of inverse of x (i.e.,  $\int \frac{1}{x} dx$ ) = \_\_\_\_\_
- 5) Define Mode of the observation with example.
- 6) Write the formula of Binomial Distribution of Random variable.

**Q2 Numerical / Short Note Questions (Each of 04 Marks) 12 Marks**

- 1) The mean of the following frequency distribution is 16, find the missing frequency?

Class	0-4	4-8	8-12	12-16	16-20	20-24	24-28	28-32	32-36
Frequency	6	8	17	23	16	15	-	4	3

- 2) Calculate the Mean and Standard-deviation for the following distribution.

Marks	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of students	3	6	13	15	14	5	4

- 3) Write Short note on Scatter Diagram with Example and Figure.

**Q3 Answer the following (Any Three) 18 Marks**

- There are three boxes, first box contains 6 red and 4 black balls, second box contain 4 red and 6 black balls, and third box contain 5 red and 5 black balls. One of the box is selected at random and a ball is drawn from it. If the ball drawn is red, find the probability it is drawn from the first box.
- Find Mean, Variance and Standard-Deviation of the number of heads in a simultaneous toss of three coins.
- According to the U.S Census Bureau, approximately 6% of all workers in Jackson city of Mississippi, are unemployed. In conducting a random telephone survey in Jackson city, what is the probability of getting two or fewer unemployed workers in a sample of 20? (Hint: Use Binomial Distribution)
- Write short note on
  - Stratified Random Sampling
  - Cluster (or Area) Sampling

**Q4 Answer the following (Any Two) 18 Marks**

- Discuss comparison between Differentiation and Integration.
- A specialist in hospital administration state that number of FTEs (Full Time Employees) in a hospital can be estimated by counting the number of beds in the hospital. A healthcare business researcher decided to develop a regression model in an attempt to predict the number of FTEs of a hospital by the number of beds. She surveyed 12 hospitals and obtained the following data. The data are presented in sequence, according to the number of beds.

Number of Beds	FTEs	Number of Beds	FTEs
23	69	54	178
29	95	64	156
29	102	66	184
35	118	76	176
42	126	78	225
46	125		
50	138		

- Explain the following in detail with proper diagram
  - Pie charts
  - Bar Graphs
  - Histogram
  - Frequency Polygon
  - Ogives