**Roll No……..…..** **Total No. of Printed Pages: 02**
**Total No. of Questions: [10]**

**MBA (Aviation Management) (Semester – 1st)**
**BUSINESS STATISTICS AND ANALYTICS FOR DECISION MAKING**
**Subject Code: MBADS1124**
**Paper ID: [23261104]**

**Time: 03 Hours** **Maximum Marks: 60**

**Instruction for candidates:**

1. Section A consists of 10 compulsory short notes of two marks each.
2. Section B consists of Four Units (Unit – I, II, III & IV). Each unit contains two questions of 8 marks each. Student has to attempt one question from each unit.
3. Section C (8 Marks): A short Case Study related to the syllabus.

**Section – A** **(2 marks each)**

Q1. Attempt the following:

a) Differentiate between discrete and continuous series
b) Explain Coefficient
c) Define Correlation and causation
d) Differentiate Dispersion Vs. skewness
e) Explain Mutually exclusive events
f) Define Negative and positive correlation
g) Give Relationship between correlation and regression coefficients
h) If $b_{xy} = -0.5$ and $b_{yx} = -0.25$, then r = ?
i) Which is the ideal method of calculating Weighted Index Numbers and why?
j) Define Ogive Curve

**Section – B** **(8 marks each)**

**UNIT-I**

Q2. Annual earnings of 300 part-time employees of Hypothetical Ltd. are given in the ensuing section.

| Annual Earnings | Number of Employees |
|---|---|
| Rs. 500 but less than 700 | 12 |
| Less than 900 | 33 |
| Less than 1100 | 85 |
| Less than 1300 | 155 |
| Less than 1500 | 223 |
| Less than 1700 | 259 |
| Less than 1900 | 275 |
| Less than 2100 | 286 |
| Less than 2300 | 295 |
| Less than 2500 | 300 |

Find the median annual earnings of the employees.

Q3. Discuss the relationship among Mean, Median and Mode in symmetric and non-symmetric distributions.

**UNIT-II**

Q4. Following are the marks of students in Statistics and Economics. Calculate and interpret the value of correlation between marks in both the subjects.

| Roll No. | Marks in Statistics | Marks in Economics |
|---|---|---|
| 1 | 55 | 66 |
| 2 | 58 | 45 |
| 3 | 64 | 58 |
| 4 | 55 | 54 |
| 5 | 71 | 77 |
| 6 | 39 | 64 |
| 7 | 44 | 54 |
| 8 | 58 | 42 |
| 9 | 66 | 59 |
| 10 | 68 | 51 |

Q5. Discuss:

(i) Regression equation
(ii) Regression lines
(iii) Regression coefficient

**UNIT-III**

Q6. Discuss the components of time series in detail.

Q7. Construct index numbers using Fisher's Ideal method

| Commodity | Price (2008) | Quantity | Price (2009) | Quantity |
|---|---|---|---|---|
| A | 60 | 50 | 100 | 56 |
| B | 20 | 100 | 20 | 120 |
| C | 40 | 60 | 60 | 60 |
| D | 100 | 30 | 120 | 24 |
| E | 80 | 40 | 120 | 26 |

**UNIT-IV**

Q8. What is the probability, that a leap year selected at random will contain 53 Sundays?

Q9. A bag contains '6' red, 4 white and 8 blue balls. If three balls are drawn at random, find the probability, that

(i) '1' is red and '2' are white,
(ii) '2' are blue and 1 is red,
(iii) none is red.

**Section – C** **(8 marks)**

Q10. Case Study:

In equation $\hat{Y} = 120 + 0.32X$, Y is the weekly sales of a store (in thousands of dollars) and X is the number of hours the store is open during the week.

a. What are the units of measure for 'a' and 'b'?
b. If store stays open 60 hours next week what is its predicted sales level?
c. If the store doesn't open at all next week, what does the equation predict for its sales level?
d. If the store doesn't open at all next week, what would you predict for its sales level?
e. Why is the answer in part c not valid?