

**MBA – TTM Semester 1<sup>ST</sup> Examination**

**Course Title: Statistics for Management**  
**Course Code: PGTTM1C004T**

Time Allowed : 3 Hrs

Maximum Marks: 100

**Section A (10 x 1.5 Mark each = 15 Marks)**

- Attempt all questions and choose the right answer
  - Each question is of one mark
1. If the slope of the regression line is calculated to be 2.5 and the intercept 16 then the value of Y when X is 4 is:
    - a. 66.5
    - b. 26
    - c. 16
    - d. 2.5
  2. A negatively skewed distribution is where:
    - a. The median value is greater than the arithmetic mean
    - b. The median value equals the modal value
    - c. The median value equals the arithmetic mean
    - d. The median value is less than the arithmetic mean
  3. The average of the squared deviations from the arithmetic mean is called the:
    - a. Standard deviation
    - b. Mean absolute deviation
    - c. Variance
    - d. Co-efficient of variation
  4. The Laspeyres and Paasche index are examples of:
    - a. Weighted quantity index only
    - b. Weighted price index only
    - c. Aggregate index numbers
    - d. Weighted index numbers
  5. Weighted average of relatives if base year value is taken as weights gives
    - a. Fisher's Index
    - b. Paasche's Index
    - c. Laspeyre's Index
    - d. None of these
  6. We can use the regression line for past data for forecasting future data. We are then using the line which:
    - a. Maximises the sum of squared deviations of past data from the line
    - b. Minimises the sum of deviations of past data from the line
    - c. Minimises the sum of squared deviations of past data from the line
    - d. Maximises the sum of deviations of past data from the line



7. The coefficient of variation of a data set is 20% and the variance of the data set is 16. What is the mean of the data set?
- 4
  - 20
  - 25
  - 80
8. Using regression analysis for forecasting, a high value for  $R^2$  suggests that we can:
- Have no confidence in our forecast
  - Be totally confident in our forecast
  - Have little confidence in our forecast
  - Be reasonably confident in our forecast
9. The sum of the observations in a data set containing 10 observations is 120 and the standard deviation of the data set is 3. If 3 is added to every observation in the data set then, what will be the coefficient of variation of the resulting data set
- 0
  - 7.5%
  - 20%
  - 25%
10. The moving average may constitute a satisfactory trend for a series that is of
- Linear Duration
  - Whose cycles are regular in duration
  - Both of the above
  - None of above

**SECTION B (8 X 5 Mark each = 40 Marks)**

- Attempt five questions selecting at least one from each unit
- Each question carries 8 marks

**Unit I**

11. Compute the mode from the following data

	15-20	20-25	25-30	30-35	35-40
Wages (Rs)					
Workers	12	23	19	14	5
Wages (Rs)	40-45	45-50			
Workers	4	3			

12. The mean and standard deviation of a set of 100 observations were 40 and 5 respectively. But, by mistake, the value of one observation was taken as 50 instead of 40. Find the correct mean and variance.



### Unit II

13. From the following frequency distribution, calculate Bowley's coefficient of skewness

Wages More than	0	10	20	30	40	50	60	70	80
No of Workers	150	140	100	80	80	70	30	14	0

14. Compute the coefficient of variation from the data given below

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No.	18	22	40	32	8	10	20

### Unit III

15. The following data represents inbound and outbound tourism in India. Is there a correlation between both series. Figures represented are in million

Inbound	5.2	5.6	6.3	6.6	7.0	7.6	8.0
Outbound	10.5	11.0	13.0	14.0	14.5	15.5	16.5

16. Define correlation. Find out if a relationship exists between the two groups of data given below with the help of spearman rank coefficient of correlation

Series 1: 11, 10, 7, 9, 5, 8, 3, 6, 12, 13  
 Series 2: 4, 3, 2, 20, 13, 12, 11, 10, 6, 5

### Unit IV

17. Following data is given for marks in subjects in A and B of a certain examination

	Subject A	Subject B
Mean Marks	36	85
Standard Deviation	11	8

Coefficient of correlation between A and B is +0.66. Determine the two regression equations and the expected marks in A corresponding to 75 marks obtained in B

18. The following table gives average daily per capita expenditure on food items (Y) and average per capita total daily expenditure (X) for different income classes

Y	11.7	7.8	6.3	13.7	15.2	18.1	24.2	30.8	52.9	50.2	54.0
X	195	230	274	312	344	491	645	863	1175	1180	1500



Find linear regression of Y on X and interpret the results.

### Unit V

19. Explain how will you estimate seasonality in a given time series. How will you test for seasonality.
20. Discuss Time Reversal Test and Factor Reversal Test for index numbers and show that Fisher's Ideal Index statistics these tests using an example.

### SECTION C (3 x 15 Mark each = 45 Marks)

- Attempt any three questions including case study question, which is compulsory
- Each question carries 15 marks

21. Find out quarterly seasonal indices using moving average method for the following data of number of defects per quarter for 2012 to 2015

Year	Quarter			
	Q1	Q2	Q3	Q4
2012	25	20	22	18
2013	27	23	20	19
2014	18	19	18	17
2015	17	16	15	15

22. Goals scored by two teams in a football session were as under. Calculate CV and state which team is more consistent

No of Goals	0	1	2	3	4	5	Total
Matches of Team A	15	10	7	5	3	2	42
Matches of Team B	20	10	5	4	2	1	42

23. Find the two regression equations from the following data

X	25	22	28	26	35	20	22	40	20	18
Y	18	15	20	17	22	14	16	21	15	14

24. Calculate the mean, median and mode of the following series.

Class	5-7	7-9	9-11	11-13	13-15	15-17
Frequency	4	7	11	5	3	2



## CASE STUDY

25. India Tourism Ministry has come up with various innovative marketing strategies to promote India as an attractive tourism destination. One such strategy has been the Incredible India campaign. For the last few years, the foreign tourist arrivals had been

Year	FTA in India (in million)
2004	3.46
2005	3.92
2006	4.45
2007	5.08
2008	5.28
2009	5.17
2010	5.78
2011	6.31
2012	6.58
2013	6.97
2014	7.68
2015	8.03

Source: Ministry of Tourism Data

- Determine the best fitting line of FTA on Time
- Based on the line, predict the foreign tourist arrivals in 2020