LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**B.Sc.** DEGREE EXAMINATION – **CORPORATE SEC. & BUSINESS ADMIN.**

THIRD SEMESTER – **NOVEMBER 2012**

# ST 3105 - INTRODUCTION TO STATISTICS

Date : 07/11/2012 Dept. No. Max. : 100 Marks

Time : 9:00 - 12:00

**SECTION - A**

**Answer ALL questions**: **(10 x 2 = 20 marks)**

1. Distinguish between classification and tabulation.
2. What are the different types of diagrams?
3. State any two methods of probability sampling.
4. State merits and demerits of mean
5. Find the median of the following data:

84 , 91, 72 , 68, 87 ,78,

1. Define dispersion. What are the measures of dispersion?
2. The average rainfall of a city from Monday to Saturday is 0.3 inches. Due to heavy rainfall on Sunday the average rainfall of the week increased to 0.5 inches. Find the rainfall on Sunday.
3. What are the properties of correlation coefficient.
4. What are the various components of a time series?
5. State Yule’s coefficient of variation.

**SECTION - B**

**Answer any FIVE questions: (5 X 8 = 40 Marks)**

11. What are the limitations of statistics?

12. Write short notes of the following:

(a) Cluster Sampling (b) Random sampling.

13. The mean of 200 items is 60.Later on it was discovered that one of the observation with value 182 was wrongly taken as 82 . Find the correct mean.

14. Calculate the harmonic mean for the following :

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | 10 | 12 | 14 | 16 | 18 | 20 |
| F | 7 | 9 | 10 | 4 | 3 | 6 |

15. Compute mean deviation abut median from the following data:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| X | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
| F | 8 | 12 | 17 | 14 | 9 | 7 | 4 |

16. Calculate Karl Pearson`s coefficient of correlation from the following data:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Demand (kg) | 95 | 96 | 98 | 110 | 115 | 125 | 130 | 140 |
| Price (Rs.) | 25 | 26 | 23 | 27 | 30 | 33 | 35 | 40 |

17. Calculate the trend values for the following data using 3 yearly moving average

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Sales | 26 | 27 | 29 | 32 | 35 | 38 | 35 | 34 | 30 | 32 |

18.Out of 900 persons, 300 were literates and 400 had travelled beyond the limits of their district.100 of

the literates were among those who had not travelled. Is there any relationship between literacy and

travelling?

**SECTION - C (2 X 20 = 40 Marks)**

**Answer any TWO questions**

19.(a) Draw a histogram and frequency polygon on the basis of the following data:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mid value** | **18** | **25** | **32** | **39** | **46** | **53** | **60** |
| **Frequency** | **10** | **15** | **32** | **42** | **26** | **12** | **9** |

(10)

19.(b) Calculate the mean, median and mode from the following data and verify the empirical relationship.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| C.I | 1-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 | 81-90 | 91-100 |
| F | 5 | 9 | 12 | 15 | 10 | 9 | 7 | 5 | 6 | 4 |

(10)

20.(a) The scores of two players A and B in 12 rounds are given below:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **A** | **84** | **87** | **80** | **85** | **88** | **87** | **89** | **98** | **95** | **94** | **92** | **91** |
| **B** | **87** | **84** | **80** | **90** | **85** | **94** | **96** | **82** | **85** | **84** | **86** | **81** |

(10)

Identify the better player and the more consistent player. (10)

20.(b) From the following data compute Bowley’s coefficient of skewness.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 40 - 50 | 50 – 60 | 60 -70 | 70 - 80 | 80 - 90 |
| No.of students | 20 | 25 | 28 | 23 | 15 |

(10)

21. Calculate Skewness and kurtosis for the following distribution and interpret them.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| Frequency | 10 | 15 | 20 | 27 | 14 | 12 |

(20)

22.(a) Fit a straight line trend for the following data by the method of least squares. Also estimate the trend value for the Year 2005.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **1996** | **1997** | **1998** | **1999** | **2000** | **2001** |
| **Production** | **12** | **10** | **14** | **15** | **16** | **20** |

(10)

22.(b) Calculate the seasonal indices from the following data using the simple average method.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **1stquarter** | **2ndquarter** | **3rdquarter** | **4thquarter** |
| **1974** | **72** | **68** | **80** | **70** |
| **1975** | **76** | **70** | **82** | **74** |
| **1976** | **74** | **66** | **84** | **80** |
| **1977** | **76** | **74** | **84** | **78** |
| **1978** | **78** | **74** | **86** | **82** |

(10)

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