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**D.K.M.COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1**

**SEMESTER EXAMINATIONS**

 **Nov - 2016 15CCO3D**

**ELECTIVE Ι :BUSINESS STATISTICS AND OPERATIONAL RESEARCH - Ι**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Time: 3 Hrs Max.Marks: 75

SECTION-A (10 x 2 =20)

 **Answer ALL the questions.**

1. What is chronological classification?
2. What is a simple random sample?
3. Find the median from the following data 47, 25, 18, 24, 19, 23, 55, 42, 36, 31.
4. Calculate the Harmonic mean of 20, 25, 30, 35.
5. What are the measures of dispersion?
6. Find the quartile deviation for the following data 45, 25, 35, 60, 70, 50, 65, 47, 80, 90, 95.
7. What is meant by skewness?
8. Write down the formula for Karl Pearson’s co-efficient of skewness.
9. Mention any two basic assumption of LPP.
10. What do you mean by Linear programming?

SECTION-B (5 x 5 =25)

 **Answer any FIVE of the following questions.**

1. Distinguish and explain primary and secondary data.
2. Find the mode of the following distribution

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class limits | 46-50 | 51-55 | 56-60 | 61-65 | 66-70 | 71-75 | 76-80 | 81-85 | 86-90 | 91-95 |
| Frequency | 2 | 3 | 5 | 7 | 9 | 11 | 7 | 2 | 3 | 1 |

1. Co -efficient of variation of two different distributions are 58% and 69%. Their standard deviation are 21.2 and 15.6 respecting. What are their arithmetic mean?
2. Calculate Karl Pearson’s co- efficient of skewness.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Size | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Frequency | 2 | 11 | 36 | 64 | 39 | 39 | 22 | 2 |

1. What are the basic requirement of LPP?
2. What are the merits and demerits of mean?
3. Draw Lorenz curve from the following data

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Amount of profit in lakhs Rs. | 150 | 160 | 600 | 840 | 1050 | 1500 | 1700 | 4000 |
| Frequency | 28 | 20 | 34 | 30 | 28 | 26 | 22 | 12 |

1. Calculate standard deviation:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Class interval  | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | Total |
| Frequency  | 2 | 5 | 9 | 3 | 1 | 20 |

SECTION-C (3 x 10 =30)

 **Answer ALL the questions.**

1. (a) Explain various sources of collecting data.

(Or)

(b) Calculate Arithmetic mean and mode.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class interval  | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
| Frequency (f) | 14 | 24 | 38 | 20 | 4 |

1. (a) Calculate Co-efficient of mean deviation about median for the following data.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
| Frequency | 18 | 16 | 15 | 12 | 10 | 5 | 2 | 2 |

(Or)

(b) Find out Bowley’s co-efficient of skewness from the following data.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Class limits  | 18-24 | 24-30 | 30-36 | 36-42 | 42-48 | 48-54 | 54-60 |
| Frequency | 18 | 22 | 40 | 50 | 38 | 12 | 4 |

1. (a) Solve the following LPP by graphical method.

Maximize z = 2x1 + 3x2

Subject to 3x1 + 2x2 ≤ 12

 3x1+ 5x2 ≤ 15, x2 ≥ 2, where x1, x2 ≥ 0.

(Or)

(b) The first of two samples has 100 items with ‘15’ and variance 9. If the whole group has 250 items

 with mean 15.6, variance 13.44, find the Standard Deviation of the Second sample.

**\* \* \* \* \* \* \***