

[Total No. of Questions - 18] [Total No. of Printed Pages - 4]
(2123)

1569

B. Pharmacy 3rd Semester Examination

Pharmaceutical Statistics (N.S.)

BP-235

Time : 3 Hours

Max. Marks : 70

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt any *Two* questions from Section A and any *Eight* questions from Section B. Section C is compulsory.

SECTION - A

1. Calculate the mean deviation and its coefficient from the following data:

| Class | Frequency |
|-------|-----------|
| 0-10 | 5 |
| 10-20 | 8 |
| 20-30 | 12 |
| 30-40 | 15 |
| 40-50 | 20 |
| 50-60 | 14 |
| 60-70 | 12 |
| 70-80 | 6 |

(10)

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[P.T.O.]

2. The following table gives indices of industrial production of registered unemployed (in hundred thousand). Calculate the value of the coefficient of correlation.

| | | | | | | | | |
|----------------------|------|------|------|------|------|------|------|------|
| Year: | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| Index of Production: | 100 | 102 | 104 | 107 | 105 | 112 | 103 | 99 |
| No. of unemployed: | 15 | 12 | 13 | 11 | 12 | 12 | 19 | 26 |

(10)

3. Calculate Karl Pearson's coefficient of skewness:

| Variable | Frequency | Variable | Frequency |
|----------|-----------|----------|-----------|
| 70-80 | 11 | 30-40 | 21 |
| 60-70 | 22 | 20-30 | 11 |
| 50-60 | 30 | 10-20 | 6 |
| 40-50 | 35 | 0-10 | 5 |

(10)

SECTION - B

4. The following table gives the marks obtained by a group of 80 students in an examination. Calculate the variance.

| Marks obtained | No. of students | Marks obtained | No. of students |
|----------------|-----------------|----------------|-----------------|
| 10-14 | 2 | 34-38 | 10 |
| 14-18 | 4 | 38-42 | 8 |
| 18-22 | 4 | 42-46 | 4 |
| 22-26 | 8 | 46-50 | 6 |
| 26-30 | 12 | 50-54 | 2 |
| 30-34 | 16 | 54-58 | 4 |

(5)

5. Find the standard deviation from the following data:

| | | | | | | | | |
|-----------------------|----|----|----|----|-----|-----|-----|-----|
| Age under: | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 |
| No. of persons dying: | 15 | 30 | 53 | 75 | 100 | 110 | 115 | 125 |

(5)

6. Calculate the Median and Mode of the following data. Find also Arithmetic mean.

| | | | | | | |
|------------------|----|----|----|----|----|----|
| Marks: | 10 | 20 | 30 | 40 | 50 | 60 |
| No. of students: | 8 | 23 | 45 | 65 | 75 | 80 |

(5)

7. Find the missing frequency from the following data:

| | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|
| Marks: | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| No. of students: | 12 | 18 | 27 | — | 17 | 8 |

The arithmetic mean is 28.

(5)

8. The mean and standard deviation of a series of 100 items were found to be 60 and 10 respectively. While calculating two items were wrongly taken as 5 and 45 instead of 30 and 20. Calculate the correct variance and coefficient of variation. (5)

9. The life time of electric bulbs for a random sample of 10 from a large consignment gave the following data:

| | | | | | | | | | | |
|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Item: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Life in '000 hours: | 4.2 | 4.6 | 3.9 | 4.1 | 5.2 | 3.8 | 3.9 | 4.3 | 4.4 | 5.6 |

(5)

[P.T.O.]

10. Calculate the mean deviation from the following data:

| | | | | | | | |
|------------------|-----|-----|------|-------|-------|-------|-------|
| Age (years): | 4-6 | 6-8 | 8-10 | 10-12 | 12-14 | 14-16 | 16-18 |
| No. of students: | 30 | 90 | 120 | 150 | 80 | 60 | 20 |

(5)

11. In a regression study the two regression lines are obtained as $2x-3y+6=0$ and $4y-5x-8=0$. Calculate means of x and y . If the standard deviation of x is 3, find the standard deviation of y .
12. Two samples of 100 electric bulbs each has a means 1500 and 1550, standard deviation 50 and 60. Can it be concluded that two brands differ significantly at 1% level of significance in equality.
13. The equations of two lines of regression obtained in a correlation analysis are as:

$$2x = 8-3y \text{ and } 2y = 5 - x$$

Obtain the value of the correlation coefficient.

(5)

SECTION - C

14. State the various measures of central tendency.
15. Distinguish between classification and tabulation of data.
16. What is χ^2 test of goodness of fit.
17. What is "Analysis of variance" and where it is used?
18. Discuss the F-test for testing the equality of two sample variance.

(5×2=10)