

Duration 3 hours

Max Marks :70

Q 1 (A) Attempt any seven out of nine problems.

(14)

1) Which of the following measure is not much affected by extreme values in the data?

(a) Arithmetic mean (b) Median (c) mode (d) Quartile

2) The marks obtained by 12 students in a unit test are given. The median and mode of the data are

11,17, 12, 15, 17, 8, 13, 16, 15, 15, 14.

(a) 11, 12 (b) 14, 15 (c) 14, 17 (d) 15, 14

3) The coefficient of Quartile deviation of the data 100, 24, 18, 72, 100, 68, 35, 20, 78, 22, 61. is

(a) 0.55 (b) 0.56 (c) 0.57 (d) 0.58

4) If the probability of a defective bulb is 0.1, the mean and Variance of the distribution of defective bulbs in a total of 500 is:

(a) 50, 50 (b) 100, 45 (c) 100, 90 (d) 50, 45

5) In an experiment of tossing an unbiased coin 3 times the probability of getting at least one head is

(a)  $3/8$  (b)  $1/3$  (c)  $7/8$  (d) 1

6) The average runs scored by the two players A and B are 53 and 45 respectively with S.D. 40 and 16. The more consistent player is

(a) A (b) B (c) both A and B (d) Can not find

7) The mean of a sample of 400 items taken from a large population is 10 with Standard deviation 2.3. Write the upper limit of 95% confidence for population mean.

(a) 10.325 (b) 10.525 (c) 10.225 (d) 10.625

8) To test the hypothesis of equality among several variable, the best measure is:

(a) Z-test (b) t-test (c) chi-square test (d) ANOVA

9) To test the significance of the difference between observed and expected frequency, the best measure is: (a) Z-test (b) t-test (c) chi-square test (d) F test

Q 1 (B) Attempt any one.

(1)

I) Define Type I and Type II error. II) Define level of significance

Q 2 (A) Attempt any two. (8) M

I) Find the mode of the following data.

Size of the farm	0 -20	20 -40	40- 60	60 - 80	80 - 100	100- 120
Number of farms.	12	8	16	7	4	3

II) Calculate median for the following data .

Marks obtained	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Number of students	2	3	8	14	8	3	2

III) The mean marks scored by 300 students in calculus is 45. The mean of the top 100 of them was found to be 70, and that of the last 100 was 20. Find the mean of the remaining 100.

Q. 2 (B) Attempt any one. (3) M

I) Compute the Quartiles and Quartile deviation of the following set of observations.

49, 60, 18, 15, 45, 11, 40, 20, 9, 7, 6, 5, 26, 30, 35.

II) The average daily income of a group of 50 persons is Rs. 116. It was later discovered that one figure was misread as 163 instead of 136. Calculate the correct average daily income.

Q 3 (A) Attempt any two. (8) M

I) Calculate mean deviation about mean.

X	10	11	12	13
f	3	12	18	12

II) Calculate the Standard deviation of the following data.

12, 6, 7, 3, 15, 10, 18, 5, 13, 11

III) What do you understand by Dispersion? What purpose does a measure of Dispersion serve ?

Q 3 (B) Attempt any one. (3) M

I) Write three Merits and Demerits of mode of the data.

II) Define Quartiles and Quartile deviation of the data.

Q 4 (A) Attempt any two.

- i) Find Karl Pearson's coefficient of skewness from the following data. (8)

Wages (in Rs.)	0-10	10-20	20-30	30-40	40-50
No. of workers	15	20	30	25	10

- ii) The first four moments of the distribution about the value 4 are -1.5, 17, -30 and 108.

Calculate the moments about the mean.

- iii) For a distribution the mean is 10, variance is 16, the 3<sup>rd</sup> central moment is 1 and fourth central moment is 1024. Obtain 1<sup>st</sup> four moments about origin.

Q 4 (B) Attempt any one.

(3)

- i) Find  $E(X)$  and  $V(X)$  for the following probability distribution.

X	2	4	6	8	10
frequency	1/8	1/4	3/16	1/4	3/16

- ii) Two cards are drawn from a pack of well shuffled cards. Find the probability that at least one card is a face card.

Q 5 (A) Attempt any two.

(8)

- i) Fit a Poisson Distribution to the following data.

x	0	1	2	3	4
f	123	59	14	3	1

- ii) Average percentage of failures in a certain Examination is 40. What is the probability that

Out of a group of 6 candidates at least 4 passed in that Examination?

- iii) Heights of soldiers follow normal distribution with mean 68.22 inches and variance 10.8 inches.

Find the expected number of soldiers in a regiment of 1000 whose height is more than 72

inches. (Given area from  $z = 0$  to  $z = 1.15$  is 0.3749)

Q 5 (B) Attempt any one.

(3)

- i) Fit a Straight line to the following data.

X	0	1	2	3	4	5
y	1	2	3	4.5	6	7.5

- ii) Fit a parabola to the following data.

X	1	2	3	4	5
y	25	28	33	39	46

Q 6 (A) Attempt any two.

(8)

I) A machine is designed to pack oil in tins of 5 Kg. A sample of 10 tins gave mean weight of 4.8 Kg with S.D. of 2 Kg. Test at 5% LOS whether the machine is working properly.

( for 9 d.o.f.at 5% LOS critical value of t is 2.262 )

II) In a sample of 1000 persons , 540 eat rice and rest eat wheat. Test at 1% LOS , whether the Difference in proportions significant .( critical value of Z = 2.58 )

III) Four machines A,B,C,D are used to produce a fabric for surgical dressing. A sample of size 5 With unit of 100 m<sup>2</sup> is selected and number of flaws in each unit are counted as below.

Test at 5%LOS whether there is significant Difference in performance of the machines.

(Table value of F= 8.74)

A	13	11	10	16	12
B	15	11	13	18	12
C	14	10	12	13	11
D	14	10	15	17	10

Q 6 (B) Attempt any one.

(3)

I) Given

Sample size	8	10
variance	13.5	11.5

Test whether the difference in variance is significant at 5%LOS. Use F test .

II)The table gives number of accidents occurred. Test whether the accidents are uniformly

Distributed over the week at 5% los.(  $\chi^2 = 11.07$  )

day	Mon	Tue	Wed	Thu	Fri	Sat
No. of accidents	14	18	12	11	15	14

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Course: B. PHARM. (SEM- IV) (CBSGS)(PROG-535)

Q.P Code: 15858

Correction:

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READ Q1 A (2) AS:

The marks obtained by 12 students are given.  
The median and mode are

11,17,12,15,17,8,13,16,15,15,14,15

(a) 11, 12 (b) 15, 15 (c) 14, 17 (d) 15, 14

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Please take a print out's and distribute to student.

Query Update time: 18/05/2015 04:00 PM

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