

**F.Y.B.PHARM. SEMESTER-I (2011 COURSE) : WINTER -
2017**

SUBJECT: PHARMACEUTICAL STATISTICS

Day: **Monday**
Date: **20/11/2017**

W-2017-3811

Time: **10.00 AM TO 01.00 PM**
Max Marks. 80

N.B.

- 1) Q. No. 1 and Q. No.5 are **COMPULSORY**. Out of the remaining solve any **TWO** questions from Section – I and any **TWO** questions from Section – II.
- 2) Answers to the two sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Draw diagrams or graph **WHEREVER** necessary.

SECTION – I

Q.1 Attempt any **FIVE** of the following **(10)**

- a) Explain the concept of measure of dispersion.
- b) Define regression coefficient of X on Y.
- c) Find the median of the following observations
51, 52, 53, 51, 53, 54, 50, 55, 53.
- d) State one real life situation where normal distribution is applicable.
- e) Out of 20 men, five are graduates. If 3 men are picked out of 20 men at random, what is the probability that all the three are graduate.
- f) Define probability density function.

Q.2 Following data are related to marks in accountancy (X) and marks in statistics (Y) of 10 candidates **(15)**

X	66	65	68	68	67	66	70	64	69	67
Y	68	67	68	70	65	68	70	66	68	66

- a) Find correlation coefficient between marks in accountancy and marks in statistics.
- b) Fit the line of regression of Y on X.
- c) Estimate marks in a statistics when mark in accountancy is 76.

Q.3 Two automatic tea filling machines A and B tested for the performance. **(15)**

Machines are supposed to fill 500 gm. tea in each packet. A random sample of 100 filled packets on each machine showed the following distribution.

Weight in gm	48-50	50-52	52-54	54-56	56-58	58-60
Machine A	12	18	20	22	24	04
Machine B	10	15	24	20	18	13

Check which machine is more consistent?

- Q.4** Attempt the following terms. **(15)**
- a) Explain binomial distribution. State its mean and variance
 - b) State the properties of normal distribution.
 - c) Check whether the following functions are probability mass function

i) $p(x) = \frac{x^2}{30}$, $x = 0, 1, 2, 3, 4$

ii) $p(x) = \frac{x-2}{5}$, $x = 1, 2, 3, 4, 5$

SECTION - II

- Q.5** Attempt any **FIVE** of the following. **(10)**
- a) Define random selection
 - b) Explain types of error
 - c) Define parametric test
 - d) State sign test
 - e) Define level of significance.
 - f) Write application of normal distribution

- Q.6**
- a) Discuss Chi – Square test for independence of attributes **(07)**
 - b) Two salesmen A and B are working in a certain district. From a sample survey conducted by the head office, the following result was obtained. State whether there is any significant difference in average sales between two salesmen **(08)**

	Salesman A	Salesman B
Number of sales	20	18
Average sales (Rs.)	1700	2050
Standard deviation	200	250

- Q.7** Discuss briefly different control chart. **(15)**
- Q.8** Attempt the following terms. **(15)**
- a) Parallel design
 - b) Sign test
 - c) Analysis of variance