(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 150403 **Roll No.** | | | | | | | | | | |

B.Pharma.

(SEM. IV) THEORY EXAMINATION 2013-14

PHARMACEUTICAL BIOSTATISTICS

Time : 3 Hours *Total Marks : 80*

Note :– Attempt **all** questions.

SECTION–A

1. Attempt **all** parts of this question. Each part carries 2 marks. **(2×8=16)**

   (a) What do you mean by frequency curve and frequency polygon ?

   (b) What do you mean by random sampling ?

   (c) Four groups of students consisting of 15, 20, 10 and 18 individuals reported mean height of 1.62, 1.48, 1.53 and 1.40 meters respectively. Find the mean of all students.

   (d) Give a relation between mean, median and mode.

   (e) Define skewness.

   (f) What is the equation of the line of regression of y on x ?

   (g) What is the mean and variance of binomial distribution ?

   (h) What is the probability of drawing a white ball from a bag containing 5 white and 6 red balls ?

SECTION–B

2. Attempt any **four** parts of the following : **(6×4=24)**

   (a) What are the sources of collection of primary data ? Explain briefly.

   (b) Differentiate between classification and tabulation.

   (c) Find the mean deviation of the following frequency distribution :

Class	0-6	6-12	12-18	18-24	24-30
Frequency	8	10	12	9	5

   (d) Explain the following terms :

   (i) Level of significance

   (ii) Test of significance

   (e) X is a normal variate with the mean $\mu = 25$ and standard deviation $\sigma = 5$, find the values of Z_1 and Z_2 such that $P(20 < X < 30) = P(Z_1 < Z < Z_2)$. Where Z is a standard normal variate.

SECTION–C

Note :- Attempt any **four** questions. **(10×4=40)**

3. Represent the following data by the help of percentage bar diagram :

Classes	College A	College B	College C
B.Sc.	300	400	450
B. Com.	200	250	300
B.A.	100	150	200

4. Find the arithmetic mean from the following distribution by a short-cut method :

x	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	6	10	20	10	6	4

5. Find the standard deviation from the following distribution :

Class	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79
Frequency	21	74	100	120	110	84	30	11

6. Two lines of regression are given by $x + 2y = 5$ and $2x + 9y = 8$. Calculate the value of $\bar{x}$, $\bar{y}$, b_{xy}, b_{yx} and r.

7. (i) The mean of a binomial distribution is 20 and standard deviation is 4. Calculate n, p and q with their usual meaning.

   (ii) If the sum of the mean and variance of a binomial distribution for 5 trails is 1.8 find the distribution.