(e) Calculate Karl Pearson's coefficient of correlation from the following data :

X	48	35	17	23	47
Y	45	20	40	25	45

(f) The theory predicts the proportion of beans in the four groups, G_1, G_2, G_3, G_4 should be in the ratio 9:3:3:1. In an experiment with 1600 beans the numbers in the four groups were 882, 313, 287 and 118. Does the experimental result support the theory?

(g) Define addition and multiplication of probability.

—x—

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BOP-125

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

PAPER ID : 150205

Roll No.

B.Pharma.

SPL. THEORY EXAMINATION, 2014-15

PHARMACEUTICAL MATHEMATICS & BIOSTATISTICS

Time : 3 Hours] *[Total Marks : 70*

Note: Attempt questions from each Section as per instructions.

SECTION - A

1. Attempt all parts of this section. 2x8

(a) Find $\frac{dy}{dx}$ if $y = xe^x$.

(b) Find $\frac{dy}{dx}$ if $y = x + \log x$

(c) Solve $(D^2 - 12D + 20)y = 0$

(d) What do you mean by internal and external data?

(e) If the mean of the following series is 30, find out missing value of the following data: 25, 30, 21, ?, 47, 10, 15, 17, 45, 35.

(f) The first four central moments are 0, 2.5, 0.7, and 18.75 comments on the kurtosis.

(g) Define t-test.

(h) An unbiased die is thrown. What is the probability of getting six.

SECTION - B

2. Attempt any four parts of this section. Each part carries 6 marks. 6x4=24

(a) Find $\frac{dy}{dx}$ if $y = e^{\sin x}$

(b) Find $\frac{dy}{dx}$ if $y = \sin(x^2 + 3x + 5)$

(c) Solve $(D^2 - 5D + 6)y = e^{5x}$

(d) What do you understand by Histogram?

(e) Find the straight line of best fit to the following data:

X :	1	2	3	4	5
f :	4	6	3	5	7

(f) Calculate the standard deviation for the following :

X :	56	63	70	77	84	91	98
f :	3	6	14	16	13	6	2

SECTION - C

3. Attempt any five parts of this section. Each part carries 6 marks. 8x5=40

(a) Find $\frac{dy}{dx}$ if,

(i) $x = 1 - \sin 2t$ and $y = 2\cos^2 t$

(ii) $y = x^{\log x}$

(b) Solve $(D^2 - D - 2)y = \cos 2x$

(c) Represent the following data by Bar Diagram:

Name	Yield in Quintals			
	2002	2003	2004	2005
Wheat	145	130	150	100

(d) Calculate Mean, Median and Mode from the following data :

14-15	15-16	16-17	17-18	18-19	19-20
4	6	10	18	9	3