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Total Number of Pages : 02

B.Pharm
PH.4.9

4th Semester Back Examination 2017-18
MATHEMATICS AND STATISTICS
BRANCH : B.Pharma
Time : 3 Hours
Max Marks: 70
Q.CODE : C992

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.
Answer all parts of a question at a place.

Q1 Answer the following questions : (2 x 10)

- a) Evaluate: $\int_a^b e^x dx$
- b) Evaluate: $\int e^x \csc x dx$
- c) Solve: $\frac{dx}{\sqrt{1-x^2}} + \frac{dy}{\sqrt{1-y^2}} = 0$
- d) What is homogeneous equation?
- e) Evaluate : $L(t^5 + \cos 2t)$
- f) Solve : $L(t)$
- g) What is mode?
- h) Find the median of 3, 5, 1, 9, 2, 12
- i) Write two properties of binomial distribution.
- j) If the mean of a Poisson distribution is 4, find SD.

Q2 a) Evaluate: $\int \frac{1}{\sqrt{x^2+2x+2}} dx$ (5)

b) Evaluate: $\int \frac{dx}{(x+2)(x+3)}$ (5)

Q3 a) Solve : $x^2 y dx - (x^3 + y^3) dy = 0$ (5)

b) Find the general solution: $\frac{dy}{dx} + \frac{1}{x} y = 3x$ (5)

Q4 Find the Mean and mode of the following. (10)

Class	5-10	10-15	15-20	20-25	25-30
Frequency	4	6	9	3	2

Q5 a) Find the Laplace Transform of $\sin^2 2t$ (5)

b) Find the inverse transform of $\frac{2p+1}{p^2-9}$ (5)

- Q6** a) Compute mean of Binomial distribution (5)
b) Write notes on Students t-distribution. (5)
- Q7** a) Evaluate: $\int \frac{4e^x + 6e^{-x}}{9e^x - 4e^{-x}} dx$ (5)
b) What is Laplace Transform? (5)
- Q8** a) Fit a straight line: (5)
X: 1 2 3 4 6 8
Y: 2.4 3 3.6 4 5 6
- b) In a certain sample of 2000 families, 1400 families are consumers of tea. Out of 1800 Hindu families, 1236 families consume tea. Use χ^2 test and state whether there is any significant difference between consumption of tea among Hindu and non-Hindu families. (5)
(5% value of χ^2 for one degree of freedom=3.84)

