Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

PY-201

B.Pharmacy II Semester

Examination, December 2016

Advanced Mathematics

Time : Three Hours

Maximum Marks : 70

Note: i) Answer any five questions.
ii) All questions carry equal marks.

1. a) Solve $\frac{dy}{dx} = e^{x-y} + x^2 e^{-y}$

   b) Solve $\frac{dy}{dx} = \frac{x}{y}$

2. a) Solve $\left(D^2 - 5D + 6\right) y = e^{4x}$

   b) Solve $\frac{dx}{dt} + 2y = e^t$ and $\frac{dy}{dt} - 2x = e^{-t}$

3. a) Find $L\left\{3\sin 2t + e^{-3t} + \cos 4t + t^3\right\}$

   b) Find $L\{t \sin 3t\}$

4. a) Find $L^{-1}\left\{\frac{1}{s^2 + 5s + 6}\right\}$

   b) Solve the equation

   $y'' - 3y' + 2y = 4t + e^{3t}$, where $y(0) = 1$ and $y'(0) = -1$.

5. a) Find the mean wage from the following data.

Wages	800	820	860	900	920	980	1000
No. of Workers	7	14	19	25	20	10	5

   b) Find the median for the following frequency distribution:

x	0	1	2	3	4	5	6
f	5	9	10	12	6	4	2

6. a) Find the average deviation about median for the following distribution.

x	6	12	18	24	30	36	42
f	4	7	9	18	15	10	5

   b) Calculate the standard deviation and coefficient of variation for the following frequency distributions.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency:	5	10	20	40	30	20	10	5

7. a) Find the probability of throwing a sum of 7 in a single throw of 2 dice.

   b) Find the mean and variance of the Poisson distribution.

8. a) Fit a straight line to the following data regarding x as the independent variable

x	0	1	2	3	4
y	1.0	1.8	3.3	4.5	6.3

   b) Find the coefficient of correlation between the values of x and y.

x	1	3	5	7	8	10
y	8	12	15	17	18	20

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