Roll No ..0150PY1210 27

PY - 201

B.Pharm. II Semester

Examination, June 2013

Advanced Mathematics

Time : Three Hours

Maximum Marks : 70

Note: Attempt any five questions.
All questions carry equal marks.

1. Solve any two parts :

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

b) $X(x-y)dy + y^2\,dx = 0$

c) $X\frac{dy}{dx} - 2y = x^2$

d) $\frac{dy}{dx} = \frac{y-x+1}{y-x+5}$

2. a) Find the general solution of
$(D^2 + D + 1)\,y = e^{2x} + \sin 2x$
b) Solve $(D^2 + 4)\,y = \sin 2x$

3. a) Find the Laplace transform of
i) $4t\,e^{3t} + \sin 5t$ ii) $\cos^2 t$

b) Find the inverse Laplace of $\frac{s}{(s+1)(s^2+1)}$

4. Solve the system of differential equation using Laplace Transform.

$$2\frac{dx}{dt} + \frac{dy}{dt} - x - y = e^{-t}$$
$$\frac{dx}{dt} + \frac{dy}{dt} + 2x + y = e^{t}$$
$$X(0) = 2,\ y(0) = 1$$

5. a) Explain the term significant digit.
b) What is approx, maximum error if a number is rounded off to 3 places of decimal?

6. a) Fit the second degree parabola to the following data :

x	y
0	1
1	5
2	10
3	22
4	38

b) Explain Kurtosis and how flatness is m asured

7. Out of 800 families with 4 children each, how many families would be expected to have
a) 2 boys and 2 girls
b) No girl
c) At. least 2 girls
d) At. most 2 girls

8. a) Write the rules according to which numbers are rounded off.
b) Obtain the line of regression of y on x for the data given below:

x	f
1.53	33.50
1.78	36.50
2.60	40.00
2.95	45.80
3.42	53.50

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