Roll No. | | | | | | | | | | | | | Total No. of Pages : 03

Total No. of Questions : 10

B.Pharmacy (Sem.–2)
ADVANCED MATHAMATICS
Subject Code : PHM-122
Paper ID : [D0108]

Time : 3 Hrs. **Max. Marks : 80**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of FIFTEEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains FOUR questions carrying TEN marks each and students have to attempt any THREE questions.**

SECTION-A

1. Answer briefly :

a) Solve $\int \frac{dx}{1+e^s}$

b) Explain integrating factor of following differential equation :

$$x\frac{dy}{dx} + cos^2 y = \tan y \frac{dy}{dx}$$

c) Solve $\left(D^4 - m^4\right)y = 0$, where $D \frac{d}{dx}$.

d) Write the definition of Laplace Transform.

e) Explain median with its merits and demerits.

f) Evaluate $L\left(7e^{2t} + 9e^{-3t}\right)$.

g) What are the measures of dispersion?

h) A bag contains 8 white and 4 red ball. Five balls are drawn at random. What in the Probability that 2 of them are red and 3 white?

i) Evaluate $L^{-1}\left(\frac{P}{2P^2+8}\right)$

j) Explain the limitations of F-test.

k) Solve $\int \frac{dx}{1+\cos x}$

l) Solve $\left(D^4-16\right)y=0.$

m) Explain mode with its merits and demerits.

n) Evaluate $L\left(2e^{2t}-e^{-3t}\right)$

o) Explain the normal distribution curve.

SECTION-B

Q2) Solve $\frac{dy}{dx}=\sin(x+y)+\cos(x+y).$

Q3) Find the Laplace Transformation of $\left(te^{-t}\sin 2t\right).$

Q4) Solve the following differential equation :

$$\left(y^2-x^2\right)\frac{dy}{dx}=3xy$$

Q5) Evaluate $L^{-1}\left(\frac{e^{-3P}}{P^2}\right).$

Q6 Find the Coefficient of Skewness, if Number of observations = 20

$\sum x=1452,\ \sum x^2=14428,\ Mode=63.7$

SECTION-C

Q7) From the following data given below calculate a coefficient of skewness based on percentile.

Marks :	less than 10	less than 20	less than 30	less than 40	less than 50
No. of Students :	4	10	30	40	47

Q8) Determine the relationship between the semi-inter quartile range and standard distribution in a standard normal probability curve,

Q9) Solve $\left[tD^2+(1-2t)D-2\right]y=0$ *if* $y(0)=1,\ y'(0)=2.$

Q10) Solve :

$$(D-2)x-(D+1)y=6e^{3t}$$
$$(2D-3)x+(D-3)y=6e^{3t}$$
$$if\ x=3,\ y=0\ when\ t=0.$$