SEMESTER END EXAMINATION

Question paper pattern.

Sem-4: Complex Analysis, Probability & Statistical Methods.

Note: 1. Sub questions may interchange their positions.

2. TO CLEAR the subject attend the topics written in RED colour.

MODULE-1.

1a) Problems on analytic function & find $f'(z)$.		2a) finding $f(z)$
1b) C-R Equations in Cartesian / Polar form	(OR)	2b) Standard Results
1c) Problems on Milne-Thompson Method.		2c) Harmonic Conjugate & find $f(z)$.

* Standard Results: ① S.T $\left[\frac{\partial^2}{\partial x^2}+\frac{\partial^2}{\partial y^2}\right]|f(z)|^2 = 4|f'(z)|^2$

② S.T $\left\{\frac{\partial}{\partial x}|f(z)|\right\}^2+\left\{\frac{\partial}{\partial y}|f(z)|\right\}^2 = |f'(z)|^2$

MODULE-2.

3a) Cauchy's Theorem / Cauchy's Integral formula		4a) Line Integral Problem
3b) $w=e^z$ or z^2 or $z+1/z$	(OR)	4b) Cauchy's Integral formula - Problems.
3c) Problems on Bilinear Transformation		4c) Problems on Bilinear Transformation.

Module-3.

5a) Problems on Discrete finding the value of K.	OR	6a) Problems on Continuous probability distribution find the value of K.
5b) Binnomial / Paisson. — problems		6b) Poisson / Binomial. Distribution - problems
5c) Normal / exponential Problems.		6c) Normal distribution problems.

Module-4.

7a) Problems on Rank Correlation Coefficient.	OR	8a) $\tan\theta = \frac{\sigma_x \sigma_y}{\sigma_x^2 + \sigma_y^2}\left(\frac{1-r^2}{r}\right)$.
7b) Curve fitting parabola (OR) Straight		8b) Curve fitting parabola
7c) finding r and regression lines		8c) $y = ax^b$ Problems.

Module-5

9a) Joint probability distribution problems.	OR	10a) Definations of sampling theory
9b) Problems on Single Mean.		10b) Problems on single mean.
9c) t-distribution problems.		10c) Chi-Square distribution problems.

If you prepare the topics written in RED colour you can score the below

1. Module-1 → C-R Equation — 7 M
2. Module-2 → Cauchy's theorem / Integral formula — 7 M
   $w = e^z$ or z^2 or $z + 1/z$ — 7 M.
3. Module-3 → Problems on Discrete probability distribution — 6.
4. Module-4 → Rank correlation Coefficient — 7 M.
   Curve fitting — 6 M.
   Finding 'r' & regression lines — 7 M.
5. Module-5 → Joint probability distribution problems. — 7 M.
   Student's t-distribution problems — 7 M

61 Marks