Beas.2108	**Statistical Methods and Numerical Analysis (1+1)**	**Marks: 50**
		Time: 2 hours

I   **Fill in the blanks**   (10x1=10)

1. The chi-square test was given by_____.
2. When H_0 is false and it is accepted then we commit _____ error.
3. The value of correlation coefficient lies between _____.
4. In a CRD with 10 treatments and 5 repetitions, error degree of freedom is _____.
5. Paired t-test is applicable when the observations are _____.
6. If sample size is small and σ is known then the test criterion used is _____.
7. The value of _____ coefficient is insensitive to change in scale and origin of observation.
8. The process of finding the value of y corresponding to any value of $X=X_i$ between X_0 and X_n is called _____.
9. Using the Taylor series expansion of $f(x) =\cos(x)$ near x=0, an approximation f'(0) for small h is _____.
10. Numerical techniques more commonly involved _____.

II   **Write short notes on ANY FIVE of the following**   (5x2=10)

1. Define ANOVA and give its assumptions.
2. Find solution using Newton's Backward difference formula x=4.

X	0	1	2	3
Y	1	0	1	10

3. What is Simpson's 1/3 Rule?
4. Enlist the uses of t test.
5. Explain the types of correlation.
6. What are the different effects in factorial design? And Explain.
7. What are the merits and demerits of Picard's Method of approximation?

III   **Answer ANY FIVE of the following**   (5x4=20)

1. A researcher wants to know the two samples came from the same population or not. Size of sample-1 and sample-2 are 25 and 30, to solve this problem give complete statistical analysis procedure.
2. Narrate the randomization in 4x4 Latin Square Design.
3. Enlist the methods of studying the correlation and explain the algebraic methods.
4. Give statistical model for CRD and advantages and disadvantages. Explain randomization in CRD.
5. What are the approximate area under the curve y=f(x) between x=0 and x=8 with n=4 subinterval A function f(x) is given below. (Trapezoidal rule)

x	0	2	4	6	8
f(x)	3	7	11	9	3

6. Find solution of an equation f(x)=1/x using Weddle's rule $X_1=1$ $X_2=2$ and n=6
7. Differentiate correlation and regression.

IV   **Write an essay on ANY ONE of the following**   (1x10=10)

1. Give statistical model for RCBD and complete statistical analysis procedure with randomization.
2. What is response surface methodology? Give name of different designs. How to design CCD?

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