

**Krantiguru Shyamji Krishna Verma Kachchh University, Bhuj**  
**Master of Science (Computer Applications & Information Technology)**  
**Semester: IV**

<b>Paper Code:</b> FCCS405		<b>Total Credit : 4</b> <b>Total Marks : 70</b> <b>Time : 3 Hrs</b>
<b>Title of Paper:</b> Computer Oriented Numerical Methods		
<b>Unit</b>		
	<b>Description</b>	<b>Weighting</b>
<b>I</b>	<b>Computer Arithmetic &amp; Iterative Methods</b> Absolute, Relative and Percentage error The method of successive bisection, an algorithm of bisection method to find a root and examples The method of false position The method of iterative procedure Secant method, illustration and algorithm The method of successive approximations, illustrations and algorithm	
<b>II</b>	<b>Interpolation with Equal and Unequal Intervals</b> Interpolation with equal intervals-finite difference table The Gregory- Newton formula for forward and backward interpolation corresponding algorithms and examples Interpolation for unequal intervals using Newton's formula for divided differences Lagrange interpolation Central difference formulae Extrapolation and corresponding examples	
<b>III</b>	<b>Probability</b> Introduction and various related terms of probability, Conditional probability, Baye's Rule, Application of Baye's rule	
<b>IV</b>	<b>Regression</b> Introduction to Regression, Difference between correlation and regression, Regression lines for various data	
<b>V</b>	<b>Time Series and Forecasting</b> Utility of Time Series Analysis Components of Time Series: Secular trend, Seasonal variation, Cyclical variation and Irregular variation, Methods on measurement of components: The moving average method - merits and limitations, Forecasting models and methods	
<b>Basic Text &amp; Reference Books :-</b>		
<b>1.</b>	Sastry S. S. : Introductory Methods of Numerical Analysis, Prentice Hall of India Pvt. Ltd., 1986(2)	
<b>2.</b>	Salara R S : Computer Oriented Numerical Methods, Khanna Book Publishing Co. Ltd., 2000(3)	
<b>3.</b>	Fundamentals of statistics by S.C. Gupta, Himalaya Publishing House (6)	
<b>4.</b>	Rajaraman V. : Computer Oriented Numerical Methods, Prentice Hall of India Pvt. Ltd., 1983	

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I	Q.1 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.1 (B) Medium / Long Questions. (With Internal Option)	08	
II	Q.2 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.2 (B) Medium / Long Questions. (With Internal Option)	08	
III	Q.3 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.3 (B) Medium / Long Questions. (With Internal Option)	08	
IV	Q.4 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.4 (B) Medium / Long Questions. (With Internal Option)	08	
V	Q.5 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.5 (B) Medium / Long Questions. (With Internal Option)	08	