

**GUJARAT VIDYAPITH: AHMEDABAD**  
**Faculty of Management and Technology**  
**Department of Computer Science**

**Syllabus for PhD (Computer) Entrance Examination Part-I**

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**For Detail Syllabus visit**

**[http://gujaratvidyapith.org/syllabus/MCARegular\\_Syllabus\\_2018\\_19.rar](http://gujaratvidyapith.org/syllabus/MCARegular_Syllabus_2018_19.rar)**

<b>Unit 1</b>	
<b>A</b>	INTRODUCTION TO PROGRAMMING
<b>B</b>	COMPUTER ORGANIZATION
<b>C</b>	ELEMENTARY MATHEMATICS
<b>D</b>	INTERNET CONCEPTS & WEB DESIGN
<b>Unit 2</b>	
<b>A</b>	Object Oriented Technology and Java Programming
<b>B</b>	DATABASE MANAGEMENT SYSTEM
<b>C</b>	DATA STRUCTURE
<b>D</b>	SYSTEM ANALYSIS AND DESIGN
<b>E</b>	DISCRETE MATHEMATICS
<b>Unit 3</b>	
<b>A</b>	OPTIMIZATION MODELS & OPERATION RESEARCH
<b>B</b>	MOBILE COMPUTING
<b>C</b>	COMPUTER ARCHITECTURE
<b>D</b>	Web Technology
<b>E</b>	COMPUTER NETWORK – I
<b>Unit 4</b>	
<b>A</b>	COMPUTER GRAPHICS
<b>B</b>	OPERATING SYSTEMS
<b>C</b>	MODELING WITH UML & SOFTWARE DESIGN PATTERN (GOF)
<b>D</b>	SOFTWARE ENGINEERING
<b>Unit 5</b>	
<b>A</b>	Cyber Security
<b>B</b>	Machine Learning
<b>C</b>	Computer Network – II
<b>D</b>	DATABASE ADMINISTRATION (ORACLE)
<b>E</b>	Cloud Computing
<b>F</b>	E-COMMERCE

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**Unit-1: Research Methodology**

- ❖ Research methodology: Meaning of Research, Objectives of Research, Motivation in Research, Types of Research, Research Approaches, Significance of Research.
- ❖ What is a Research Problem?, Selecting the Research Problem.

**Unit-2:**

- ❖ Introduction to Statistical Methods
  - Statistical Data and Methods
  - Applications of Statistics
  - Data for Statistics and Frequency Distribution
    - Primary and Secondary Data and It's Sources
    - Discrete Frequency Distribution
    - Continuous Frequency Distribution
  - Measure of Central Value
  - Measure of Dispersion
    - Introduction
    - Methods of Studying Dispersion
  - Measure of Skewness
    - Introduction
    - Methods of Studying Skewness

**Unit-3:**

- ❖ Correlation Analysis
  - Introduction to Correlation
  - Absolute Measure and Relative Measure
  - Types of Correlation
  - Coefficient of Correlation
  - Methods of Studying Correlation
    - Scatter Diagram Method
    - Karl Pearson's Method
    - Spearman's Rank Correlation Method
  - Probable Error
- ❖ Regression Analysis
  - Introduction to Regression
  - Regression Lines and its Types
  - Regression Equations
  - Properties of Regression
  - Analyzing and Interpretation of Regression Results

**Unit-4:**

- ❖ Time Series and forecasting
  - Moving Average
  - Smoothing of Curves
  - Forecasting Models
- ❖ Testing of Hypothesis
  - Test of Significance
  - Chi-square Test
  - T-Test
  - ANOVA
  - F-Test