

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN
THIRD YEAR B.C.A.

BCA 301 : BUILDING APPLICATION USING JAVA

Teaching Scheme (per week)		Examination Scheme					
		INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
3	--	30	--	70	--	100	--

UNIT-1

(17 Marks)

Fundamentals of Object Oriented Programming.

Object oriented paradigm, Basic concepts of Object-Oriented Programming (object and class, data abstraction and encapsulation, inheritance, polymorphism, dynamic binding, message communication), Benefits and application of OOP.

Basics of Java.

Java Features, JDK and its components(various tools of JDK), Bytecode and JVM Language building blocks: (Tokens, identifiers, keywords, literals, white spaces, comments), Primitive data types and their initial values, arrays, operators – precedence and associativity, type conversion and casting, garbage collection, flow controls, Loop statements – while, do , for, break , continue, Condition statements – if – else, switch

UNIT-2

(18 Marks)

Class Fundamentals:

Defining classes, creating objects, constructors, static members, all types of inheritance, interfaces, overloading and overriding of methods, final variable and methods, abstract methods and class, finalize methods, visibility controls and modifiers: Access modifiers – public, private, default, protected. Other modifiers: final, abstract, static, synchronized, native, volatile, transient

Packages: Putting classes together

Java API packages(java.applet, java.awt, java.io, java.lang, java.net, java.util etc) which package is used for what purpose naming conventions, creating, accessing and using packages, adding class to package, java.lang package classes(object, math, string, StringBuffer, wrapper classes) java.util package classes(Date, Random, Calendar, GregorianCalendar, Vector, enumeration, interface, Stack, Hashtable, StreamTokenizer)

UNIT-3

(18 Marks)

Multithreading & Exception Handling:

What is read, Java thread model, implementing threads in two ways- Thread class and Runnable interface, various thread methods, thread states – (running, ready, dead, waiting states – waiting, sleeping, suspended, blocked), thread priorities, Synchronization and monitors – how to implement, deadlock, Exception Handling, Types of exception, exception handling using catch, finally, throws etc.

Event Handling:

Event Delegation Model or Event Class Hierarchy, All classes and interfaces of Event Delegation Model, Programmers related to event handling covering all types of events

UNIT-4**(17 Marks)****Applets Programming**

What is an Applet, Applet lifecycle, applet class, AppletContext class, passing parameters to applet, Use of java.awt. graphics class and its various methods in an applet

JDBC and ODBC Connection Component**Managing Input /Output files in java**

Concept of streams, Difference between CharacterStreams and ByteStreams, characterStreams (Reader, Writer, BufferedReader, InputStreamReader, FileReader, BufferedWriter, OutputStreamReader, FileWriter, PrintWriter),

ByteStreams (InputStream, FileInputStream, FileInputSteam, BufferedInputStream, DataInputStream, OutputStream, BufferedOutputStream, DataOutputStream, PrintStream)

Other Classes (RandomAccessFile, StreamTokenizer, File)

Reference Books

1. Programming with JAVA
E Balagurusamy(TATA McGRAW-HILL)
2. Complete Reference JAVA
Herbert Schildt(TATA McGRAW-HILL)
3. Programming with JAVA
Dr. N.N.Jani(Bharat Company)

Question Paper Scheme:**University Examination Duration : 3 Hours.**

- Q.1 - Unit-I (17 Marks)
A. Objective/ Short Questions.
B. Descriptive/ Long questions.
- Q.2 - Unit-II (18 Marks)
A. Objective/ Short Questions.
B. Descriptive/ Long questions.
- Q.3 - Unit-III (18 Marks)
A. Objective/ Short Questions.
B. Descriptive/ Long questions.
- Q.4 - Unit-IV (17 Marks)
A. Objective/ Short Questions.
B. Descriptive/ Long questions.

Note: Options should be given in all questions.