BCA-340 JAVA PROGRAMMING

Maximum Time : 3 Hrs. University Examination : 70 Marks
Total Marks : 100 Continuous Internal Assessment : 30 Marks
Minimum Pass Marks : 40%

(A) Instructions for the Paper setter:
The question paper will consist of five sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 15% of the total marks (12 marks) each. Section E will consist of 10 short answer type question s,
which will cover the entire syllabus uniformly and will carry 40% of the total marks (32 marks) in all.

(B) Instructions for the Candidates:
1. Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A
Introduction to Java: Features of Java, difference between Java and C++, data types, variables, arrays, operators-arithmetic, bitwise, relational, Boolean, various control statements.

SECTION B
Introduction to Classes: Class fundamentals, declaring objects, methods, constructors, garbage collection, passing parameters to methods, recursion, access control, static, final and finally method, Array One dimensional array, Two Dimensional array multidimensional, Function, Functions Overloading.

SECTION C
Inheritance, super, multilevel hierarchy, abstract methods and classes. Packages and interfaces, importing packages, exception handling. Exception types, try, catch, finally, throw and throws, creating exception subclasses. Multithread programming, thread priorities, synchronization, messaging, creating multiple threads, inter thread communication.

SECTION D
Input/Output, streams, reading and writing console input/output, reading and writing files, applet fundamentals. Networking, socket overview, client/server, reserved sockets, proxy servers, Internet addressing, Java and the Net, TCP/IP client sockets. An introduction to AWT, GUI graphics, fonts, colours.

References:
1. Patrick Naughton and Herbert Schildt, “The Complete Reference Java 2”, Tata McGraw Hill, 1999.
2. E. Balaguruswami, “Java Programming”, TMH.

FOURTH SEMESTER

BCA-410 DATA BASE MANAGEMENT SYSTEM

Maximum Time : 3 Hrs. University Examination : 70 Marks
Total Marks : 100 Continuous Internal Assessment : 30 Marks
Minimum Pass Marks : 40%

(A) Instructions for the Paper setter:
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which will cover the entire syllabus uniformly and will carry 40% of the total marks (32 marks) in all.

(B) Instructions for the Candidates:
1. Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A
Database V/s File system, Architecture of DBMS, Data Independence (Logical Physical) DBA and his responsibility, DBMS structure (DDL Compiler, Data manager, File manager, Disk Manager, Query Processor)

SECTION B
Entity, Entity Set, Attributes Types (Simple & Composite, Single & Multi value, Derived), Relationship, Sets, Mapping cardinalities, Keys(Primary, Secondary, Candidate, Super, Alternate), E-R- Diagram, Hierarchical Model ,Relational Model, Network Model, Object oriented Model.

SECTION C
Anomalies in Design, Functional Dependency, Logical implications, Closure of FD, Cononical Form, Full and Partial FD, Prime and Non-prime attributes, 1-NF, 2-NF, 3-NF, BCNF, Decompositions, lossless and Dependency preservance.

SECTION D
Integrity rules (Entity integrity, Referential Integrity) Union, Difference, Intersection, Cartesian product Division, Projection, Selection, Joins.
Type calculus, Type calculus Formula, Domain calculus, SQL Basic data retrieval, Data manipulation and table study comments, views, SQL queries.

References:
1. Bipin C. Desai, “An Introduction to Data Base Systems”, Galgotia Publication.
2. Elmasri Navathe, “Fundamental of Database Systems” Pearson Edition.

BCA – 420 NUMERICAL METHOD & STATISTICAL METHOD

Maximum Time : 3 Hrs. University Examination : 70 Marks
Total Marks : 100 Continuous Internal Assessment : 30 Marks
Minimum Pass Marks : 40%

(A) Instructions for the Paper setter:
The question paper will consist of five sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 15% of the total marks (12 marks) each. Section E will consist of 10 short answer type question s,
which will cover the entire syllabus uniformly and will carry 40% of the total marks (32 marks) in all.

(B) Instructions for the Candidates:
1. Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A
Solution of transcendental equation : Bl-section method, Regula falsi method, Newton raphson method, and secont method.
System of simultaneously non-linear and alegebric equation :- Gauss elimination method, Gauss seidel alternative method, Gauss Jordan's method, Jacobi's iteration.

SECTION B
Operation, E, , , Algebric properties of E and , Relation between operators, differences table, Forward Difference, Backward Diffference, Central difference factorial Notation, Divided Differences, Language's Interpolation formula for unequal intervals.

SECTION C
Numerical Integration :- The trapezoidal rule, Simpson's 1/3 rule, Simpson's 3/8 weddle's rule.
Numerical solution of ordinary differential equation : Euler's method, Taylor's series, Runge-kutta method.

SECTION D
Introduction to statistics :- Meaning, scope of statistics, Mean, Mode, Median, Standard Deviation, Variance.
Bivariate data :- Correlation, Karl's pearson coefficient, Rank correlation Numerical based on regression lines (using least square method)

Reference:-

1. A. R. Vasishtha, "Numerical Analysis", Publisher John wiley & sons
2. B.S. Grewal, "Engineering Methodic", Khana
3. S.S Sastry, "Numerical Methads"

BCA- 430 P LAB – III (JAVA PROGRAMMING)

Maximum Time : 3 Hrs. University Examination : 70 Marks
Total Marks : 100 Continuous Internal Assessment : 30 Marks
Minimum Pass Marks : 40%

This laboratory course will comprise as exercises to supplement what is learnt under paper BCA-340 (Object oriented Programming in JAVA), All the programs will be implement in JAVA.

BCA- 440 P LAB – IV (DBMS)

Maximum Time : 3 Hrs. University Examination : 70 Marks
Total Marks : 100 Continuous Internal Assessment : 30 Marks
Minimum Pass Marks : 40%

This laboratory course will comprise as exercises to supplement what is learnt under paper BCA-410.