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PI—06—2024

FACULTY OF SCIENCE AND TECHNOLOGY

BCA (Second Year) (Fourth Semester) EXAMINATION

MARCH/APRIL, 2024

(CBCS/Revised Pattern)

COMPUTER APPLICATION

Paper BCA-404-B

(Computer Graphics)

(Wednesday, 3-4-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Assume suitable data, if required.

(*iv*) Use of any electronic media such as mobile phone, digital diary and electronic calculator is not permitted.

1. Attempt any *five* of the following (**3** marks each) : 15

(*a*) Define computer graphics. Discuss its advantages in short.

(*b*) Explain graphics primitives.

(*c*) Explain scaling.

P.T.O.

(*d*) Discuss 2-D clipping.

(*e*) Explain segment naming scheme.

(*f*) What is line ? Explain line segment.

2. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Discuss application areas of computer graphics.

(*b*) Explain functions for segmenting display file.

(*c*) Discuss Digital Differential Algorithm.

(*d*) Discuss ground rules for graphics s/w design.

(*e*) Discuss Sutherland-Hodgman algorithm.

3. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Discuss two-dimensional transformation.

(*b*) Explain segment table.

(*c*) Explain windowing function.

(*d*) Explain the concept Graphical user interface.

(*e*) Discuss implementation of instance transformation.

4. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain midpoint subdivision algorithm.

(*b*) Discuss raster scan displays.

(*c*) Discuss a graph plotting program.

(*d*) Discuss the concept shear.

(*e*) Explain Bresenham's line algorithm.

5. Write short notes on any *three* of the following (**5** marks each) : 15

(*a*) Matrix representation

(*b*) Plotter

(*c*) Geometric modeling

(*d*) Default error conditions

(*e*) Direct View Storage Tube.

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PI—19—2024

FACULTY OF SCIENCE & TECHNOLOGY

B.C.A. (Fourth Semester) EXAMINATION

MARCH/APRIL, 2024

(Revised/CBCS Pattern)

COMPUTER APPLICATION

(Data Structure and Algorithm)

(Monday, 08-04-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (1) *All* questions are compulsory.

(2) Figures to the right indicate full marks.

(3) Assume suitable data, if required.

(4) Use of any electronic media such as mobile phone, digital diary and electronic calculator is not permitted.

1. Attempt any *five* of the following (**3** marks each) : 15

(*a*) Explain any *three* basic technologies.

(*b*) Explain array as data structure.

(*c*) Explain concept of push.

(*d*) Explain recursion in brief.

(*e*) Explain terminology of binary tree.

(*f*) Explain complexity in data structure.

(*g*) Explain deques.

P.T.O.

2. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain data structure operations.

(*b*) Explain insertion sort.

(*c*) Explain concept of stack.

(*d*) Explain types of binary tree.

(*e*) Explain postfix and infix.

3. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain time space complexity tradeoff.

(*b*) Explain introduction to linked list.

(*c*) Explain bubble sort algorithm.

(*d*) Explain garbage collection.

(*e*) Explain arithmetic expression.

4. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain elementary data organization.

(*b*) Explain representation of linked list of the memory.

(*c*) Explain array representation of stack.

(*d*) Explain traversing of binary tree.

(*e*) Explain priority queue.

5. Write short notes on any *three* of the following (**5** marks each) : 15

(*a*) Insertion and deletion of linked list

(*b*) Memory allocation

(*c*) Memory representation of queue

(*d*) Searching methods

(*e*) Header nodes.

This question paper contains **2** printed pages]

PI—05—2024

FACULTY OF SCIENCE

BCA (Second Year) (Fourth Semester) EXAMINATION

MARCH/APRIL, 2024

(Revised/CBCS Pattern)

COMPUTER APPLICATION

(Operational Research)

(Wednesday, 3-4-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Assume suitable data, if necessary.

1. Attempt any *five* of the following : 15

(*a*) Explain scope of operational research.

(*b*) Explain objectives of OR.

(*c*) Explain the meaning of LLP.

(*d*) Explain the simplex method in OR.

(*e*) Discuss PERT.

(*f*) Explain advantages of decision theory.

(*g*) Discuss the general mathematical formulation for L.P.

P.T.O.

2. Answer any *three* of the following : 15

(*a*) Explain the structure model of OR.

(*b*) Explain characteristics of OR.

(*c*) Explain the characteristics of good model.

(*d*) Write steps in designing OR.

3. Answer any *three* of the following : 15

(*a*) Discuss the assumptions of LP.

(*b*) Explain the role of computer in OR.

(*c*) Write the application of LP techniques.

(*d*) Explain the disadvantages of OR.

4. Answer any *three* of the following : 15

(*a*) Discuss the decision-making under conditions of risk.

(*b*) Write the rules for game theory.

(*c*) Write the steps for decision theory approach.

(*d*) Discuss the Hurwicz criterion in detail.

5. Answer any *three* of the following : 15

(*a*) Discuss the frequency distribution curve for PERT.

(*b*) Discuss the partial dependency.

(*c*) Discuss the CPM terms.

(*d*) Explain network construction in PERT and CPM.

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PI—12—2024

FACULTY OF SCIENCE & TECHNOLOGY

BCA (Fourth Semester) EXAMINATION

MARCH/APRIL, 2024

(CBCS/Revised Pattern)

COMPUTER APPLICATION

(Programming in Java)

(Friday, 05-04-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Assume suitable data, if required.

(*iv*) Use of any electronic media such as mobile phone, digital diary and electronic calculator is not permitted.

1. Attempt any *five* of the following (**3** marks each) : 15

(*a*) Explain features of JAVA.

(*b*) Explain use of 'this' Keyword.

(*c*) Explain types of errors.

P.T.O.

(*d*) Explain appet tags.

(*e*) Explain method overriding with example.

(*f*) Explain the concept of local and remote applet.

(*g*) Explain JVM.

2. Attempt any *three* of the following (**5** marks each) : 15

(*a*) Explain JAVA programming structure with example.

(*b*) Explain concept of visibility control.

(*c*) Explain finalizer method.

(*d*) What is Package ? How do you create and access package ?

(*e*) Explain StringBuffer class in brief.

3. Attempt any *three* of the following (**5** marks each) : 15

(*a*) What is constructor ? Discuss types of constructor.

(*b*) Explain constants and data types in Java.

(*c*) What is inheritance ? Discuss types of inheritance.

(*d*) How do you define your own exception ? Explain with a suitable example.

(*e*) Explain concept of static member.

4. Attempt any *three* of the following (**5** marks each) : 15

(*a*) What is interface ? How do you define and implement interface ?

(*b*) How do you define Class, Method and Objects ?

(*c*) Explain the concept of Final Variable, Method and Final Class.

(*d*) Explain Applet Life Cycle.

(*e*) Explain Stream Classes in Java.

5. Write short notes on any *three* of the following (**5** marks each) : 15

(*a*) Difference between applet and applications

(*b*) Exception handling mechanism

(*c*) Method overloading *Vs* Method overriding

(*d*) JAVA tokens

(*e*) Looping statements in JAVA with example.

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PI—29—2024

FACULTY OF SCIENCE & TECHNOLOGY

B.C.A. (Fourth Semester) EXAMINATION

MARCH/APRIL, 2024

(Revised/CBCS Pattern)

COMPUTER APPLICATION

Paper-BCA-403

(RDMS)

(Saturday, 13-04-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (1) *All* questions are compulsory.

(2) Figures to the right indicate full marks.

(3) Assume suitable data, if required.

(4) Use of any electronic media such as mobile phone, digital diary and electronic calculator is not permitted.

1. Attempt any *five* of the following (3 marks each) : 3×5=15

(*a*) Explain where clause with example.

(*b*) Explain cross join with example.

(*c*) Explain outer join with example.

(*d*) Discuss distinct clause.

(*e*) Explain string function.

(*f*) Explain advantages of RDBMS.

(*g*) Explain characteristics of RDBMS.

P.T.O.

2. Attempt any *three* of the following (5 marks each) : 15

(*a*) Explain PL/SQL block.

(*b*) Explain Subqueries and its types.

(*c*) Explain the concept of primary key with example.

(*d*) Explain the different data types in SQL.

(*e*) Explain mapping ER model to Relational model.

3. Attempt any *three* of the following (5 marks each) : 15

(*a*) Explain Relational and Object-Oriented Data Models.

(*b*) What is Foreign Key ? Explain with example.

(*c*) Explain with example DDL commands in SQL.

(*d*) Explain Self-Join.

(*e*) Explain with example number functions.

4. Attempt any *three* of the following (5 marks each) : 15

(*a*) What is Data Constraint ? Explain Unique, Not Null.

(*b*) Explain with example Multiple Row Functions.

(*c*) Explain Altering Table with example.

(*d*) Explain Group by Clause.

(*e*) Explain with example the concept of Sorting.

5. Write short notes on any *three* of the following (5 marks each) : 15

(*a*) Comparison Operators BETWEEN and LIKE.

(*b*) Network Model

(*c*) LOGICAL Operators : AND OR NOT

(*d*) Equi Join

(*e*) View.