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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—16—2024

FACULTY OF SCIENCE AND TECHNOLOGY

B.C.A. (Second Year) (Third Semester) EXAMINATION

MARCH/APRIL, 2024

(CBCS/Revised Pattern)

COMPUTER APPLICATION

Paper-BCA-303

(Database Management System)

(Saturday, 06-04-2024) **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.

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

(*a*) Characteristics of DBMS

(*b*) Entity Set

(*c*) Tuple

(*d*) BCNF

(*e*) Data Abstraction

P.T.O.

(*f*) Normalization

(*g*) Relationship Set.

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

(*a*) Explain Users of DBMS.

(*b*) Explain the structure of DBMS.

(*c*) Explain Database languages in detail.

(*d*) What is Index ? Explain its types.

(*e*) Explain the types of file organization.

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

(*a*) Define Data models with their types.

(*b*) Explain Instances and Schemes.

(*c*) What are the types of attributes ? Explain in brief.

(*d*) Explain Constraints.

(*e*) Write the difference between file processing system and DBMS.

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

(*a*) What is ER-Model ? Explain in detail.

(*b*) Explain the relational data model in detail.

(*c*) Explain Cartesians product and natural joins.

(*d*) Explain the extended features of ER-Model.

(*e*) Differentiate foreign key and primary key.

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

(*a*) What are cardinality, degree and domain in relational model ?

(*b*) Define Project, Select and Union in relational algebra.

(*c*) Explain anomalies.

(*d*) Explain dependencies in database.

(*e*) Explain 2NF in detail.

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PI—25—2024

FACULTY OF SCIENCE & TECHNOLOGY

B.C.A. (Second Year) (Third Semester) EXAMINATION

MARCH/APRIL, 2024

(Revised/CBCS Pattern)

COMPUTER APPLICATION

(Introduction to Multimedia)

(Wednesday, 10-04-2024) **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.

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

(*a*) Define Multimedia Elements.

(*b*) DVD-ROM

(*c*) MIDI

(*d*) Digital Audio

(*e*) WORM

(*f*) Retrieval Technologies

(*g*) High Definition System.

P.T.O.

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

(*a*) Explain Multimedia applications.

(*b*) Explain the Global structure of Multimedia.

(*c*) Define Data Compression with basic Compression techniques.

(*d*) Explain JPEG and MPEG.

(*e*) Explain audio file format.

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

(*a*) Explain Run length Compression techniques.

(*b*) Explain the basic concept of sound.

(*c*) Explain CD-ROM in detail.

(*d*) Explain the vector drawing images.

(*e*) Explain computer based animation.

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

(*a*) Explain musical instrument digital interface in detail.

(*b*) Explain image formats in brief.

(*c*) Explain conventional systems in multimedia.

(*d*) Explain the retrieval technologies of any *one* optical disk.

(*e*) Explain the basic concept of multimedia.

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

(*a*) Explain Bitmap.

(*b*) Explain Graphics Format.

(*c*) Define TIFF.

(*d*) Explain broadcast video standards in detail.

(*e*) Explain Huffman Technique.

This question paper contains **3** printed pages]

PI—09—2024

FACULTY OF SCIENCE AND TECHNOLOGY

BCA (Second Year) (Third Semester) EXAMINATION

MARCH/APRIL, 2024

(Revised/CBCS Pattern)

COMPUTER APPLICATION

BCA-302

(Operating System Concepts)

(Thursday, 4-4-2024) **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.

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

(*a*) FCFS.

(*b*) Virtual devices.

(*c*) Operating system services.

(*d*) Device characteristics.

(*e*) I/O Device handlers.

(*f*) General model of a file system.

(*g*) Job scheduling.

P.T.O.

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

(*a*) Explain multiprocessor systems.

(*b*) Explain operating system extended machine view.

(*c*) Explain basic concepts and terminology.

(*d*) Explain operating system as resource manager.

(*e*) What is operating system ? Explain user view.

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

(*a*) Explain multiprogramming.

(*b*) Describe segmented memory in detail.

(*c*) Explain single contiguous allocation.

(*d*) Explain partitioned allocation.

(*e*) Explain demand paged memory.

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

(*a*) Explain process states in detail.

(*b*) How does process synchronization work in operating system ?

(*c*) Explain priority scheduling concept in detail.

(*d*) Explain Round-Robin scheduling in detail.

(*e*) Explain context switch.

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

(*a*) Describe symbolic file system.

(*b*) Explain techniques for device management.

(*c*) Explain basic file system.

(*d*) Explain I/O traffic controller.

(*e*) Explain control units.

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PI—03—2024

FACULTY OF SCIENCE AND TECHNOLOGY

BCA (Second Year) (Third Semester) EXAMINATION

MARCH/APRIL, 2024

(CBCS/Revised Pattern)

COMPUTER APPLICATION

Paper BCA-301

(Programming in C++)

(Tuesday, 2-4-2024) **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.

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

(*a*) Explain the Scope Resolution Operator.

(*b*) Explain the Basic Input/Output Statements.

(*c*) Explain the visibility modes in C++.

(*d*) Rules for operator Overloading.

(*e*) Explain the C++ Streams classes.

(*f*) Explain the file modes in C++.

(*g*) Explain the Defining Class and Members in C++.

P.T.O.

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

(*a*) Explain in detail Call by reference with example.

(*b*) Explain in detail Function Overloading with example.

(*c*) Explain in detail Structure of a C++ program.

(*d*) Explain in detail Object Oriented Programming.

(*e*) WAP in C++ to demonstrate on scope resolution operator.

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

(*a*) Explain in detail Formatted I/O operations.

(*b*) Explain in detail Virtual functions with example.

(*c*) Explain in detail Opening and Closing file.

(*d*) WAP in C++ to copy a file from nanded.txt into latur.txt.

(*e*) WAP in C++ to demonstrate on multiple inheritance.

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

(*a*) Explain in detail static members with example.

(*b*) What is Constructor ? Explain in detail any *two* constructors.

(*c*) Explain in detail Friend Function with example.

(*d*) WAP in C++ to demonstrate on destructor.

(*e*) WAP in C++ to demonstrate on Pointer to objects.

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

(*a*) What is Inheritance ? Explain multilevel Inheritance with example.

(*b*) Explain in detail Polymorphism with example.

(*c*) Explain in detail Pure Virtual functions with example.

(*d*) WAP in C++ to demonstrate on unary operator ++.

(*e*) WAP in C++ to demonstrate Virtual Base Classes.

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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—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.

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PI—24—2024

FACULTY OF SCIENCE & TECHNOLOGY

B.C.A. (Second Year) (Third Semester) EXAMINATION

MARCH/APRIL, 2024

(Revised/CBCS Pattern)

COMPUTER APPLICATION

(Business Application and ERP)

(Wednesday, 10-04-2024) **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.

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

(*a*) Discuss Business Functions.

(*b*) Discuss types of information.

(*c*) Discuss the need for an ERP System.

(*d*) Define ERP.

(*e*) Enlist disadvantages of EIS.

(*f*) Define Data Mining.

P.T.O.

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

(*a*) What is Decision Support System ? Explain in detail.

(*b*) Discuss pros and cons of ERP implementation.

(*c*) Explain Supply Chain Management.

(*d*) Discuss the reasons for the failure of ERP implementation.

(*e*) Discuss different types of information systems.

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

(*a*) Explain characteristics of information.

(*b*) Discuss the benefits of an ERP System.

(*c*) Explain Business Process Re-engineering.

(*d*) Discuss ERP Selection Process.

(*e*) Explain On-Line Analytical Processing.

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

(*a*) Discuss advantages of EIS.

(*b*) Discuss reasons for the growth of ERP market.

(*c*) Explain ERP implementation Life-cycle.

(*d*) What is Data Warehousing ? Explain.

(*e*) Explain ERP selection methods.

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

(*a*) ERP tools

(*b*) ERP selection criteria

(*c*) Integrated data model

(*d*) ERP Vendor Selection

(*e*) Management Information Systems.