NI—16—2023

FACULTY OF SCIENCE AND TECHNOLOGY

BCA (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(CBCS/Revised Pattern)

COMPUTER APPLICATION

Paper AD-22

(Database Management System)

(Monday, 4-12-2023)   **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 users of DBMS.

(*b*)   Explain concept of foreign key.

P.T.O.

(c) Explain various database languages.

(d) Explain attribute and various types of attribute.

(e) Explain any *five* Codd's rule.

(f) Explain concept of normalization.

(g) Explain second normal form.

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

(a) Explain advantages of DBMS.

(b) Explain view of data.

(c) Explain concept of primary key.

(d) Explain entity and entity sets.

(e) Explain E-R database design with example.

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

(a) Explain first normal form.

(b) Explain integrity constraints over relation.

(c) Explain logical database design.

(d) Explain dependencies in database.

(e) Explain relation and relationship sets.

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

    (*a*)   Explain third normal form.

    (*b*)   Explain components of E-R diagram.

    (*c*)   Explain structure of DBMS.

    (*d*)   Explain types of file organization.

    (*e*)   Explain difference intersection and Cartesian with example.

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

    (*a*)   Relational model

    (*b*)   Types of indexes

    (*c*)   Application of DBMS

    (*d*)   Disadvantages of DBMS

    (*e*)   Tuple and cardinality.

NI—25—2023

FACULTY OF SCIENCE AND TECHNOLOGY

BCA (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(CBCS/Revised Pattern)

COMPUTER APPLICATION

(Introduction to Multimedia)

(Wednesday, 6-12-2023)   **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.   Write short notes on the following (any *five*) :   15

    (a)   Introduction to Multimedia

    (b)   WORM

    (c)   JPEG

    (d)   Run length compression techniques

    (e)   Optical Storage

    (f)   MIDI

    (g)   Digital audio.

                             P.T.O.

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

    (a) Explain computer based animation.

    (b) Explain DVD-ROM in detail.

    (c) Explain Audio file formats.

    (d) Explain the BITMAPS images with example.

    (e) Explain conventional systems in multimedia.

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

    (a) Explain basic concept of video.

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

    (c) Explain the elements of multimedia.

    (d) How the multimedia is useful in various animated application ?

    (e) Explain enhanced definition systems in Multimedia.

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

    (a) Explain the Broadcast Video Standards multimedia.

    (b) Explain Huffman compression technique.

    (c) Explain MPEG in detail.

    (d) Explain global structure of multimedia.

    (e) Explain BMP, TIFF and PNG file formats.

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

    (*a*)   Explain the vector drawing images.

    (*b*)   Explain high definition system in multimedia.

    (*c*)   Explain musical instrument digital interface.

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

    (*e*)   Explain the multimedia applications in various sectors.

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

NI—09—2023

FACULTY OF SCIENCE AND TECHNOLOGY

BCA (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(CBCS/Revised Pattern)

COMPUTER APPLICATION

Paper BCA-302

(Operating System Concepts)

(Friday, 01-12-2023)   **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)   Define OS. Explain system view of OS.

(b)   Explain I/O Device Handlers.

P.T.O.

(*c*) Explain single contiguous allocation in short.

(*d*) Explain channels and control units.

(*e*) What is context switching ? Explain.

(*f*) Discuss the concept of Virtual Devices.

(*g*) Explain Priority scheduling.

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

(*a*) Write the techniques for Device Management.

(*b*) Discuss Operating System Services.

(*c*) Discuss an operating system as a resource manager.

(*d*) Explain Demand-Paged Memory Management.

(*e*) Discuss a Simple File System.

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

(*a*) General Model of a File System.

(*b*) Discuss Process Synchronization in short.

(*c*) Discuss segmented memory management in short.

(*d*) Discuss user view of Operating System.

(*e*) Explain SJF.

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

   (*a*)   Discuss Relocatable Partitioned Memory Management.

   (*b*)   Discuss importance of Operating system.

   (*c*)   Explain I/O Scheduler.

   (*d*)   Explain Basic File System.

   (*e*)   Explain the concept of Multiprogramming.

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

   (*a*)   Operating System — Extended machine view

   (*b*)   Multiprocessor system

   (*c*)   Job scheduling

   (*d*)   I/O Traffic controller

   (*e*)   FCFS.

NI—03—2023

FACULTY OF SCIENCE AND TECHNOLOGY

BCA (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(CBCS/Revised Pattern)

COMPUTER APPLICATION

Paper BCA-301

(Programming In C++)

(Wednesday, 29-11-2023)   **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)   What is Object Oriented Programming ?

   (b)   Explain C++ Tokens.

   (c)   Explain if conditional statement.

   (d)   What is Array ? Explain.

(*e*)   What is Object ? Explain.

(*f*)   Explain concept of Manipulators.

(*g*)   Explain concept of Virtual Base Class.

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

(*a*)   Explain the basic concepts of OOPs.

(*b*)   What are the data types in C++ ?

(*c*)   Explain in detail Scope Resolution Operator.

(*d*)   Explain if-else statement with example.

(*e*)   Explain for loop with suitable example.

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

(*a*)   Explain concept of References in C++.

(*b*)   Explain call by value with suitable example.

(*c*)   What is Inline function ? Explain in detail.

(*d*)   Write a program in C++ to explain the concept of class.

(*e*)   Write a program in C++ to explain the concept of Pointer to members.

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

(*a*)   Explain in detail concept of Function Overloading.

(*b*)   Describe in brief visibility modes used in class.

(*c*) What is Constructor ? Explain with suitable example.

(*d*) Describe in brief the concept of Friend Function.

(*e*) Write a program in C++ to explain the concept of unary Operator Overloading.

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

(*a*) Rules for Overloading

(*b*) Types of Inheritance

(*c*) Polymorphism

(*d*) Pure Virtual functions

(*e*) C++ Stream Classes.