S–6930

Sub. Code
22BCA5C1

B.C.A. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Computer Application

.NET PROGRAMMING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What are the different data types in Visual Basic?

2. Write the difference between static array and dynamic array in VB.Net.

3. What is event? Explain with example.

4. Write a note on Checkbox and Radio button.

5. Point out the function of DateTimePicker

6. How to create a Popup menu in VB.Net?

7. Write any four mathematical functions in VB.

8. What is the difference between procedure and function?

9. What is dataset in ADO.Net?

10. Which object of ADO.Net has the best performance for retrieving the data?

Part B

$(5 \times 5 = 25)$

Answer **all** the questions choosing either (a) or (b).

11. (a) Explain different operators used in VB.Net.

Or

(b) How would you describe the components of .Net framework?

12. (a) Describe the properties, methods and events of Textbox control.

Or

(b) Evaluate the difference between object oriented and event driven programming.

13. (a) How to create a menu? Explain about insertion and deletion of menu with example.

Or

(b) Compare list box, Combo box and checked list box.

14. (a) Discuss the functions of string manipulation with suitable example.

Or

(b) Illustrate the features of MDI form in Visual basic.

15. (a) What are the main components of the ADO.Net object model and how are they used?

Or

(b) Develop a simple database application using ADO.Net.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the architecture of .Net framework with a neat diagram.

17. Describe properties, methods and events of any two form controls in detail.

18. Illustrate on the designing Menus in VB.Net.

19. Manipulate on the string handling functions and methods.

20. Explain ADO.Net object model and the steps for database connections using ADO.Net.

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S–6931

Sub. Code
22BCA5C2

B.C.A. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Computer Applications

PYTHON PROGRAMMING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Mention benefits of using python.
2. Comparing between local and global variable.
3. Define function in python.
4. What is the difference between break and continue statement?
5. Mention the type of function and its use.
6. What is meant by module in python?
7. List different object oriented features supported by python.
8. What is tuple?
9. How the write method works on a file?
10. What is the use of finally block of exception handling in python?

Part B

$(5 \times 5 = 25)$

Answer **all** the questions, choosing either (a) or (b).

11. (a) State and explain any six features of Python.

Or

(b) Explain operators of python with suitable examples of each.

12. (a) Explain the need for Break and continue statements with sample code.

Or

(b) Write syntax and explain the concept of elif statement in decision making.

13. (a) What are the three types of import statement in python? Explain.

Or

(b) Write a brief note on arrays in python with appropriate example.

14. (a) Differentiate between List, Tuple and set with suitable example.

Or

(b) Illustrate class inheritance in python with an example.

15. (a) Explain different modes of opening a file.

Or

(b) What is an exception? Explain with few examples.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write a program related to python arithmetic and comparison operators including all the operations.

17. Illustrate the different types of control flow statements available in python with flowcharts.

18. Describe module in python with its advantages.

19. Define python lists? With a program explain the concept of Accessing values in lists, updating Lists and deleting list elements.

20. Describe the need for catching exceptions using try and except statements.

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S–6932

Sub. Code
22BCA5C3

B.C.A. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Computer Applications

WEB DESIGN TECHNOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define WWW.

2. Write the application of internet.

3. How to create hyperlink in HTML?

4. List the types of Style sheets.

5. Write the advantages of JavaScript.

6. What is the scope of the variables in JavaScript?

7. Define XML. What are the advantages of XML?

8. What is a DTD? Mention its types.

9. Write the structure of PHP script with an example.

10. How to delete databases in PHP?

Part B (5 × 5 = 25)

Answer **all** the questions, choosing either (a) or (b).

11. (a) Explain the features of the web. Define the uses of web browser and web server.

Or

(b) Describe in detail the steps involved in planning and publishing a website.

12. (a) Explain the structure of the HTML webpage with an example.

Or

(b) What are the different types of lists supported in XHTML? Explain.

13. (a) What is JavaScript? What are the features of JavaScript?

Or

(b) How do HTML, CSS and JavaScript work together?

14. (a) Define an array. Explain about the types of arrays in PHP with an example.

Or

(b) List and explain the control structures used in PHP.

15. (a) Explain Database connectivity in PHP with reference to MYSQL.

Or

(b) What are the basic commands of PHP? Describe each.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about Bandwidth and cache and describe the difference between them.

17. Illustrate the internal structure of a web browser. Explain the difference between website and web browser.

18. Explain about function definition, function calling, Function parameter, and return type with a suitable example in JavaScript.

19. List and explain the string functions in PHP with suitable example.

20. How create, insert and alter data from a table in MySql using PHP Script?

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S–6933

Sub. Code
22BCA5C4

B.C.A. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Computer Applications

COMPUTER ARCHITECTURE AND ORGANIZATION

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A ($10 \times 2 = 20$)

Answer **all** the questions.

1. Give the equivalent decimal number for the octal number 736.4.

2. State the behavior of high impendence state.

3. Compare direct with indirect address diagrammatically.

4. State the use of STA.

5. List the categories of programs written for a computer.

6. Define assembler.

7. Distinguish main memory and control memory.

8. List any two address sequencing capabilities required in control memory.

9. Sketch the major components of CPU.

10. List the most common fields found in instruction format.

Part B (5 × 5 = 25)

Answer **all** the questions choosing either (a) or (b).

11. (a) With illustration, explain overflow in fixed point representation.

Or

(b) A digital computer has a common bus system of 16 registers of 32 bits each. The bus is constructed with multiplexers

(i) How many selection inputs are there with multiplexer?

(ii) What size of multiplexers are needed?

12. (a) With appropriate diagrams explain three instruction code formats of a basic computer.

Or

(b) With illustration, explain branch and save return address.

13. (a) Outline the flowchart for first pass assembler.

Or

(b) Describe step by step procedure for programming the multiplication operation.

14. (a) What is the need for fetch routine? Mention the microinstruction needed for fetch routine with its description.

Or

(b) Sketch and label the microinstruction code format and specify its purpose.

15. (a) Explain the block diagram of register set with common ALU.

Or

(b) With illustration, Compare one address instruction with zero address instruction.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail shift microoperations with suitable diagrams.

17. Sketch the flowchart for memory reference instruction and explain.

18. Write a detailed note on program loops.

19. Write a detailed note on design of control unit.

20. Write a detailed note on stack organization.

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S–6934

Sub. Code
22BCA6E1

B.C.A. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Computer Applications

Elective : DATA MINING AND WAREHOUSING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What are Data Mining Task Primitives?

2. How Data Similarity is Measured in Data Mining?

3. Define Data Cube and its role in OLAP systems.

4. How Attribute-Oriented Induction used for Data Generalization?

5. Enumerate the Extended Applications of Frequent Patterns.

6. Why is Pattern Evaluation important?

7. Determine the methods used for Evaluating and Selecting Classification Models.

8. How do Bayesian Classification differ from other Classification Techniques?

9. Define Cluster Analysis.

10. Why is Outlier Analysis crucial?

Part B $(5 \times 5 = 25)$

Answer **all** the questions, choosing either (a) or (b).

11. (a) Discuss the Techniques of Data Reduction in Data Preprocessing. How do they improve Data Mining Efficiency?

Or

(b) Analyze the impact of Data Quality on Data Mining processes and how it can be addressed.

12. (a) Explain the process of Data Generalization by Attribute-Oriented Induction and its relevance to Data Mining.

Or

(b) Infer the Fundamental Concepts of Data Warehousing.

13. (a) Describe the Process and benefits of Constraint-Based Frequent Pattern Mining.

Or

(b) Explain the Basic Concepts involved in Mining Associations and Correlations.

14. (a) Discuss the Advantages and Limitations of Decision Tree Induction in Classification.

Or

(b) What methods are used for Evaluating and Selecting Classification Models? Explain.

15. (a) Summarize the Technique of Clustering High-Dimensional Data.

Or

(b) Compare Partitioning Methods and Hierarchical Methods in Clustering.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss the Challenges and Strategies for Measuring Data Similarity and Recognizing Patterns in Large Datasets.

17. Analyze the Methods used for Efficient Data Cube Computation.

18. Evaluate the Role of Pattern Evaluation Methods in Data Mining. Discuss techniques used to assess the Significance of Patterns.

19. Describe Ensemble Methods and how they combine multiple Classifiers to improve accuracy.

20. Explain Semi-Supervised Clustering and Classification. Summarize its Benefits and Limitations compared to Fully Supervised Methods?

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S–6935

Sub. Code
22BCA6E2

B.C.A. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Computer Applications

Elective : ARTIFICIAL INTELLIGENCE

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Artificial intelligence.

2. What is first order logic?

3. How the value of information used in decision making?

4. Draw a simple Wumpus world with example.

5. Write the forms of learning

6. Where will be the planning problem is utilized?

7. What is utility theory?

8. Define Bayesian network.

9. List the uses of reinforcement application.

10. Write the formal grammar for communication.

Part B (5 × 5 = 25)

Answer **all** the questions, choosing either (a) or (b).

11. (a) Describe in detail a knowledge-based agent? Explain Wumpus world.

Or

(b) Write the difference between propositional and first order logic.

12. (a) What is a decision theoretic expert system? Explain in detail.

Or

(b) Define planning problem? Explain with partial order planning.

13. (a) Describe in detail the logical formulation of learning.

Or

(b) What is probability? Brief overview.

14. (a) Find the exact inference of Bayesian network.

Or

(b) Write a short note on explanation-based learning.

15. (a) List and explain the various applications of ANN.

Or

(b) Explain in detail various statistical learning methods.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail forward and backward chaining.

17. What is utility and explain multi-attribute utility function?

18. Explain with neat diagram on semantics of Bayesian networks.

19. What is inductive logic programming? Explain in detail.

20. Where is communication as action is used? Details on formal grammar.

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S–6936

Sub. Code
22BCA6E3

B.C.A. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Computer Applications

Elective – SOFTWARE ENGINEERING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Software Engineering.

2. What are the software myths for its changing nature?

3. Write on functional and non-functional requirements of software.

4. What is an object model?

5. Draw a use case diagram for a retail shop.

6. Write the difference between quality and quantity.

7. How is the system testing performed?

8. What are the metrics to measure the quality of software?

9. What is RMMM and its principle?

10. Define software reliability.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write the generic view of software engineering.

Or

(b) Explain the incremental model with a neat diagram.

12. (a) Explain in detail the Software Requirements Specification (SRS) document.

Or

(b) How the software elicitation and analysis is performed during requirements engg?

13. (a) Describe architectural styles and patterns.

Or

(b) Explain about class diagram for the student information system.

14. (a) Write the strategic approach for software testing.

Or

(b) Write the metrics for the design model.

15. (a) Write the difference between Reactive vs. proactive risk analysis.

Or

(b) Write about formal technical reviews for software quality management.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the Capability Maturity Model Integration (CMMI) with a diagram.

17. Explain in detail the waterfall model with a neat diagram.

18. Describe a sequence diagram with an example.

19. Describe metrics for process and products in software.

20. Write in detail about ISO 9000 quality standards.

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S–6937

Sub. Code
22BCA6E4

B.C.A. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Computer Applications

Elective: INTERNET OF THINGS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Sketch the evolutionary phases of Internet.

2. Mention the key difference between the IT and IoT in terms of data.

3. State the various data related problems to be addressed by IoT system functions.

4. Define actuator and mention any four types.

5. Sketch IEEE 802.1 5.4g/e MAC format.

6. Mention the usage of class A of LoRaWAN device.

7. Mention the key advantage of Internet protocol.

8. List down the categories of IoT application transport methods.

9. Mention the areas of challenges faced by roadway operators.

10. Mention the need for IoT blueprint for public safety emergency.

Part B $(5 \times 5 = 25)$

Answer **all** the questions, choosing either (a) or (b).

11. (a) With a table representation, compare OT with IT.

Or

(b) Discuss the impact of IoT in any two sectors.

12. (a) Sketch IoT data management and compute stack with fog computing and discuss about the characteristic of fog computing.

Or

(b) Define smart object. With diagram, explain its characteristics in detail.

13. (a) Sketch and mention about main three topology schemes available for connecting IoT devices.

Or

(b) Write a note on LoRaWAN with appropriate diagram.

14. (a) Does optimization is necessary for IP? Justify your answer in detail.

Or

(b) Write a detailed note on MQTT protocol.

15. (a) Write a note extending the roadways IoT architecture to bus mass transit.

Or

(b) Write a note on public and private partnership for public safety IoT.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Sketch and explain the IoT reference model.

17. Explain in detail about wireless sensor networks with appropriate diagrams.

18. Write a detailed note on IoT access technologies.

19. Sketch and explain the protocol stack for transporting serial DNP3 SCADA over IP.

20. Write a detailed note on IoT use cases for transportation.

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S–6938

Sub. Code
22BCA6E5

B.C.A. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Computer Applications

Elective : CLOUD COMPUTING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is cloud computing?

2. Write the difference between intranet and Internet.

3. Write the applications of cloud computing.

4. List the components of networking.

5. Define IAAS?

6. What are the web browsers and its roles?

7. What is Microsoft Azure?

8. Define Virtual machine?

9. What are storage accounts in Azure?

10. Write the security features provided by Azure.

Part B (5 × 5 = 25)

Answer **all** the questions choosing either (a) or (b).

11. (a) Describe about cloud computing with Architectural diagram.

Or

(b) Write in detail on cloud computing components.

12. (a) Explain in detail cloud platforms and their support features.

Or

(b) Write about various cloud storage providers and explain its functionalities.

13. (a) Draw an architecture diagram of SAAS and brief its architectural features.

Or

(b) What is hypervisor and explain its applications.

14. (a) Explain amazon EC2 and its features.

Or

(b) Write in detail on Microsoft Azure deployment models.

15. (a) What are the subscription and billing details for Microsoft Azure.

Or

(b) What are the virtual machine components and its configuration.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe Intranet and Cloud Computing.

17. Write short notes on

    (a) Para Virtualization

    (b) Full Virtualization

18. Write in detail Azure resource manager and explain the classic deployment models.

19. Describe briefly Azure Virtual models and perform the configuration to connect a virtual machine.

20. Explain in detail on Azure storage along with creating an account and manage its process.

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S–6939

Sub. Code
22BCA6E6

B.C.A. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Computer Applications

Elective : MOBILE APPLICATION DEVELOPMENT

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What does the term "mobile ecosystem" refers to?

2. Compare native and hybrid apps.

3. How is an SMS app used?

4. Give examples of enterprise apps and their primary usage.

5. What is the primary purpose of a sitemap in mobile app development?

6. List any four mobile design tools.

7. What does J2ME stand for?

8. What is the main purpose of an SDK?

9. Label the features of android OS.

10. Define Symbian OS.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain about mobile ecosystem.

Or

(b) List the various mobile services.

12. (a) Describe the importance of touch-friendly design in mobile websites.

Or

(b) Summarize the role of informative apps.

13. (a) Show the benefits of using wireframes in the design process.

Or

(b) Categorize the key elements of mobile design.

14. (a) Explain the essential requirements for small computing devices.

Or

(b) Interpret about J2ME SDK.

15. (a) Elucidate the working of Android emulator.

Or

(b) Explain the features of Samsung Bada.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Outline the architecture of mobile OS.

17. Interpret advantages of location based services app.

18. Explain about mobile information architecture and it's important?

19. Summarize the J2ME architecture and development environment.

20. Infer the features of Google android.

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S–7282

Sub. Code
22BCA1C1

B.C.A. DEGREE EXAMINATION, APRIL 2025

First Semester

Computer Applications

DATA STRUCTURES AND C PROGRAMMING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Data Structure.

2. What are operations on Queue?

3. Write a note on enum keyword.

4. Write any two bitwise operators

5. How do you declare an array?

6. What do you meant by nested loop?

7. Write short notes on keyword static

8. How do you define a structure?

9. Write the significance of pointers in C.

10. Write the syntax of fopen ( ).

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Discuss on Tree and its characteristics.

Or

(b) Explain the insertion operation of Linked List.

12. (a) Describe the operators of C.

Or

(b) Discuss on Data types in C.

13. (a) Write a C program for sorting the given set of numbers.

Or

(b) Differentiate between while and do. .while loop.

14. (a) Write a C program to prepare pay roll of employee using following data :

HRA = 3.5% of Basic pay, DA = 12% of Basic Pay, tax = 5% of Basic Pay, Gross = Basic Pay + HRA + DA and Net Pay = Gross – tax.

Or

(b) Write short note on recursion.

15. (a) Explain the arrays and pointers.

Or

(b) Discuss on file handling operations.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What are basic operations of Stack? Explain in detail.

17. Write down the input and output statements of C. Explain in detail.

18. Explain the string handling functions with examples.

19. Define scope and lifetime of the variable and explain with example.

20. Create a student file with student name, roll number and marks and open the file find total and percentage and write in another file.

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S–7283

Sub. Code
22BCAA1

U.G. DEGREE EXAMINATION, APRIL 2025

Computer Applications

Allied – DATA STRUCTURES AND C

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is an abstract data types?

2. Illustrate an Array.

3. Write short notes on Function.

4. Define a Pointer.

5. Illustrate practically where we are implementing queue concept.

6. Explain a Doubly linked list.

7. Briefly explain a Binary Tree.

8. What is a tree?

9. Explain sorting.

10. What is a Binary search?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain the Compilation and linking Processes of C program.

Or

(b) Explain about the Looping statement used in C.

12. (a) Explain the Recursion function with a example program.

Or

(b) Illustrate Structure in C with a example program.

13. (a) Explain Queue, how it is used as a data structure in storage.

Or

(b) Explain Linked List and its types.

14. (a) Illustrate the difference between Tree and a Binary Tree.

Or

(b) Explain the Inorder Traversal of a Tree.

15. (a) Explain the Hash Table.

Or

(b) Explain the Bubble sort with algorithm.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe an Array and its types.

17. List out the difference between Structure and Union.

18. Explain the Array based implementation of Stack and Queue.

19. Explain the types of traversals in Binary Tree.

20. Explain Search and its types.

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S–7284

Sub. Code
22BCA2C1

B.C.A. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Applications

OBJECT ORIENTED PROGRAMMING IN C++

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is object?

2. Define Derived Data type.

3. Write a note on default argument.

4. What do you meant by static member function?

5. Write the significance of copy constructor.

6. What is Abstract Class?

7. What is use of this keyword in C++?

8. Write any two open mode of file in C++.

9. Differentiate error and exception.

10. What is meant by template?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain the various object oriented programming concepts in C++.

Or

(b) Write a C++ program to check whether the given number is perfect or not.

12. (a) Explain about inline function with suitable example.

Or

(b) Write a C++ program for add integer, float and double numbers using operator overloading.

13. (a) Explain multiple inheritance with example.

Or

(b) What is destructor? Explain.

14. (a) Discuss on IO streams in C++.

Or

(b) Explain Random Access file.

15. (a) Write a C++ program to handle divide by zero error.

Or

(b) Define function template. Explain with example.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write a C++ program for demonstrating matrix multiplication.

17. Discuss on function overloading with suitable example.

18. Explain the different types of constructor with example.

19. Write a C++ program for student mark sheet with student name, roll number and marks and find total and percentage using file processing.

20. Briefly explain about Exception Handling in C++.

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S–7285

Sub. Code
22BCAA2

U.G. DEGREE EXAMINATION, APRIL 2025

Computer Applications

Allied – DESKTOP PUBLISHING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List out the area of application of Corel Draw.

2. What are the basic reshaping objects used in Corel Draw?

3. What are the Text Tool used in Desktop publishing?

4. Elaborate Object Linking.

5. What is a Bitmap?

6. Explain Art Effect.

7. List the Menus in Photoshop.

8. List some tools in Toolbox of Photoshop.

9. Define the interfaces used in Photoshop.

10. How Filters used in Photoshop?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the features of Corel Draw.

Or

(b) Explain how to Organising Objects.

12. (a) Describe how to Embedding Objects into Text.

Or

(b) How to create a Power Clips?

13. (a) How to convert Objects into Bitmap?

Or

(b) How to apply effects on Bitmap printing?

14. (a) How to customize the interface in Photoshop?

Or

(b) How to work with a images in Photoshop?

15. (a) Explain how to convert Type Layers to Standard Layers.

Or

(b) Explain the Filter Menu in Photoshop.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain how to get start with a Corel Draw.

17. List out the types of effects used in applying on Text.

18. List out the types of effects used in Bitmap.

19. Illustrate how to work with images in Photoshop.

20. List out any five types of filters and explain how to apply filters to images.

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S–7286

Sub. Code
22BCA3C1

B.C.A. DEGRE E EXAMINATION, APRIL 2025

Third Semester

Computer Applications

DATABASE MANAGEMENT SYSTEM

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Data Storage?

2. What is view of Data?

3. What is a Normal form?

4. Define Temporal Data.

5. What is Parallel Database?

6. What is Query Processing?

7. What is a Schema?

8. What is a Role?

9. What is a Trigger?

10. What is a Cursor?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Discuss about Object based and Semi structured Databases.

Or

(b) Discuss on the History of Database Systems.

12. (a) Discuss about Atomic Domain.

Or

(b) Explain different Normal forms.

13. (a) What is Client-Server Architecture?

Or

(b) Write a note I/O Parallelism.

14. (a) Discuss about Data Integrity.

Or

(b) Write a note on Synonyms.

15. (a) Discuss about PL/SQL.

Or

(b) Write briefly about Transactions.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss about E-R Model.

17. Discuss about Normalization.

18. Explain Distributed Databases.

19. Discuss about Indexes, Sequences and Views.

20. Explain the Stored Procedures and Functions.

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S–7287

Sub. Code
22BCA3C2

B.C.A. DEGREE EXAMINATION, APRIL 2025

Third Semester

Computer Applications

OPERATING SYSTEM

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the kernel?

2. Difference between Process and Program.

3. Explain mutual exclusion primitives in OS.

4. What is Deadlock?

5. Explain internal Fragmentation.

6. What is called Paging?

7. What is frame table?

8. What is thrashing?

9. Explain I/O system in OS.

10. What is secondary memory?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain Layered approach in OS.

Or

(b) Explain process states and PCB.

12. (a) Explain Monitors in OS.

Or

(b) Describe deadlock prevention in OS.

13. (a) Difference between logical and physical address space in memory management.

Or

(b) Explain fragmentation in OS.

14. (a) Explain file access methods.

Or

(b) Explain about demand paging.

15. (a) Explain security problem in secondary storage.

Or

(b) Explain application of I/O interface in I/O system.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain scheduling algorithm.

17. Explain deadlock detection and recovery.

18. Explain contiguous memory allocation.

19. Explain page replacement algorithm.

20. How to transforming I/O request to hardware ope ration?

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S–7288

Sub. Code
22BCAA3

U.G. DEGREE EXAMINATION, APRIL 2025

Computer Applications

Allied – DISCRETE MATHEMATICS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Define Set.

2. What is Power set?

3. What are called Atomic statements?

4. Define Tautology.

5. What is called an Elementary Sum?

6. What is meant by Principal of Conjunctive Normal Form?

7. Define Self-loop.

8. Write the degree of pendant vertex and isolated vertex.

9. Define Spanning tree.

10. Define Eulerian graph.

Section B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Define Function. Explain surjections and injections with example.

Or

(b) Define the following relations with examples

(i) Reflexive

(ii) Symmetric

(iii) Transitive

12. (a) Write a note on Well-Formed Formulas.

Or

(b) Construct the truth table for $(P \to Q) \wedge (Q \to P)$.

13. (a) Obtain Principal Conjunctive Normal Forms of $(7P \to R) \wedge (Q \leftrightarrow P)$.

Or

(b) Show that S V R is tautologically implied by $(P \vee Q) \wedge (P \to R) \wedge (Q \to S)$.

14. (a) When two graphs are said to be isomorphic? Give an example.

Or

(b) Define Path and Cycles with an example.

15. (a) Describe Prims algorithm with an example.

Or

(b) Define Cut Set and Cut Vertices with examples.

Section C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Prove the following using Venn diagram.

(a) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

(b) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

17. Describe the different Connections used in mathematical logic.

18. Show that $(x)\,(P(x) \vee Q(x)) \Rightarrow (x)P(x) \vee (\exists x)\,Q(x)$.

19. Define the following with an example.

(a) Subgraph

(b) Complete graph

(c) Bipartite graph

(d) Connected graph

20. What is Boolean algebra? Explain Boolean function.

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S–7289

Sub. Code
22BCA4C1

B.C.A. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Applications

JAVA PROGRAMMING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is a Web browser?

2. Define Type Casting.

3. Write a note on operator precedence.

4. Give any two Bitwise operators in Java.

5. Define Class.

6. Write the Significance of Wrapper class.

7. What is Thread?

8. Short note on package.

9. Compare applet and application.

10. What is meant by Graphics?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write the Structure of Java Program.

Or

(b) Why Java is called as platform independent? Explain.

12. (a) Write a Java program to find the given number is perfect or not.

Or

(b) Explain any two control statement in Java with example.

13. (a) Illustrate the principle of method overloading in Java.

Or

(b) Explain about the concept of overriding methods with example.

14. (a) How do you utilize multiple catch statement in a program? Explain.

Or

(b) Explain Multi–threaded programming Concept in Java.

15. (a) Briefly explain about Applet Life Cycle.

Or

(b) Write a Java program to demonstrate adding Applet to HTML file.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the various object oriented programming concepts in Java.

17. Discuss on the types operators of Java.

18. How do you define, extend and implement Interfaces? Explain with example.

19. Explain the following: (a) creating package (b) Accessing package (c) Importing Package.

20. Write a Java Program to draw a Human face using Applet.

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S–7290

Sub. Code
22BCA4C2

B.C.A. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Applications

COMPUTER NETWORKS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the uses of computer networks?

2. Write the 7 layers of OSI model.

3. Define protocol. Write some example protocols.

4. Write some example networks.

5. What are petri net models?

6. How routing algorithms are used in network layer.

7. What is the role of ICMP in network layer?

8. List the performance issues in transport layer.

9. Where is cryptography is used?

10. Why World Wide Web is important? Justify.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Describe basis of network hardware and software.

Or

(b) What are the various transmission media? Brief it.

12. (a) Explain various design issues in data link layer.

Or

(b) Write a short note on elementary data link layer.

13. (a) Describe with example on tunneling in networ k layer.

Or

(b) What are the various congestion control algorithms?

14. (a) List and brief on elements of transport protocols.

Or

(b) Explain flow control and buffering in transport layer.

15. (a) Write a short note on Network security.

Or

(b) What are JPEG and MPEG standards? Explain.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What is ISDN? Explain in detail on broadband and narrowband.

17. Describe in detail on error detection and error correction codes.

18. Explain in detail on finite state models.

19. Brief note on ATM networks and its connection setup.

20. Write a note on DNS, SNMP in application layer.

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S–7291

Sub. Code
22BCAA4

U.G. DEGREE EXAMINATION, APRIL 2025

Computer Applications

Allied – COMPUTER ORIENTED STATISTICAL METHODS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the formula to find Median and Mode?

2. Define Dispersion.

3. What is Probability distribution?

4. Define Sample space.

5. Define Population.

6. What is Small Sample Test?

7. Define Type-I Error.

8. What is Normal Distribution?

9. Mention any two properties of regression co-efficient.

10. What is Simple Linear Regression.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Calculate mean deviation from following data :

X	20	21	22	23	24
f	6	15	21	15	6

Or

(b) Calculate Arithmetic mean of from following data.

X	3	9	12	14	15	17
f	1	3	4	1	4	2

12. (a) If $P(A) = \frac{4}{15}, P(B) = \frac{7}{15}$ and if A and B are independent events, find

(i) $P(A \cap B)$

(ii) $P(A \cup B)$

(iii) $P(\overline{A} \cup \overline{B})$.

Or

(b) A sample of 300 items selected at random had 32 defective items. Find mean and standard deviation of sampling distribution of proportion.

13. (a) Write a note on Unbiasedness, Consistency and the efficiency of an estimator.

Or

(b) Define the following terms.

(i) Power of a test.

(ii) Level of significance.

14. (a) A random sample of 10 boys had the following I.Q.'s is 70, 120, 110, 101, 88, 83, 95, 98, 107 and 100. Do these data support the assumption of a population mean I.Q. of 100?

Or

(b) A random sample of 16 values from a normal population showed a mean of 41.5 inches and the sum of squares of deviations from this mean = 135 sq. inches. Obtain the 95% and 99% confidence limits for population mean.

15. (a) Describe about Non-Linear Regression models.

Or

(b) Find the regression line of profits on output from the following data using least square method.

Output (100 tons)	5	7	9	11	13	15
Profit per unit (Rs.)	1.7	2.4	2.8	3.4	3.7	4.4

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Calculate mean and standard deviation mean and the standard deviation.

Size	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	7	10	32	43	50	35	123

17. Three machines A, B and C produced identical items. Of their respective output 2%, 4% and 5% of items are faulty. On a certain day A has produced 30% of the total output, B has produced 25% and C the remainder. An item selected at random is found to be faulty. What are the chances that it was produced by the machine with the highest output?

18. Write detail note on the following :

(a) Statistical Hypotheses

(b) Test of Hypotheses and Significance.

19. For a random sample of 10 pigs fed on diet A, the increases in weight in pounds in a certain period were: 10, 6, 16, 17, 13, 12, 8, 14, 15, 9. For another sample of 12 pigs, fed on Diet B, the increase in the same period were: 7, 13, 22, 15, 12, 14, 18, 8, 21, 23, 10, 17. Test whether diets A and B differ significantly as regards to their effect on increase in weight.

20. Find the two regression lines for the following data:

Price (Rs.)	100	120	110	110	160	150
Demand (in unit)	40	38	43	45	37	23

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