S–5777

Sub. Code
23BIT1C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Information Technology

PROGRAMMING IN C

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. State the importance of C program.

2. What are the different types of expression?

3. What is difference between while and do-while?

4. How will you declare a string array?

5. Name the function which is used. to split the given string in C.

6. Compare formal parameters with actual parameters.

7. What do you understand by members of a structure? How will you access the members of a structure?

8. What is the use of array of structures?

9. How will you declare a pointer variable?

10. What is pointer scaling? Give an example.

Part B

$(5 \times 5 = 25)$

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

11. (a) Discuss the various programming environments.

Or

(b) Why are logical operators used? Write a program using logical Operators.

12. (a) Write a C program to illustrate the use of switch statement.

Or

(b) Explicit the elements of user defined functions.

13. (a) Write a C function to check whether the given year is leap or not.

Or

(b) Explain the recursive factorial algorithm for finding the factorial of five.

14. (a) Write a C program to create a structure for student data.

Or

(b) Write down the difference between structure and union.

15. (a) Illustrate the call by reference using pointers.

Or

(b) Discuss the formatted I/O with files.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the operators available in C with example.

17. Write a C program to find the matrix multiplication of two matrices.

18. Write a short note on the following

    (a) Function with argument and without return type

    (b) Function without argument and with return type.

19. Write a C program to create structure within structure and access their members. Create a structure birth date for DOB and use it within the structure employee.

20. Explain the concept to access arrays using pointers.

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S–5778

Sub. Code
23BITA1

U.G. DEGREE EXAMINATION, APRIL 2025

Information Technology

Allied – DIGITAL LOGIC FUNDAMENTALS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. How a decimal number converted into its binary equivalent?

2. Draw the schematic symbols of AND and OR gates.

3. State the Boolean algebra laws of Complementation.

4. List the advantages of K-Map.

5. Define encoder. Draw the truth table for Octal-to-Binary Encoder.

6. What is a simple parity generator circuit with two data inputs and one output?

7. How a RS flip flop converted into D- flip flop?

8. Mention the need for shift registers.

9. Differentiate asynchronous and synchronous counters.

10. List the types of RAMs.

Part B (5 × 5 = 25)

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

11. (a) Define number system. Convert decimal $(2365.146)_{10}$ to binary and octal representation.

Or

(b) Explain logic gates with an example.

12. (a) (i) Convert binary number 1001 into Gray code.

(ii) Convert Gray number 1010 into binary code

Or

(b) Simplify the given expression: $f(W,X,Y,Z) = (7, 5, 10, 1\ 1\ , 13, 15)$

13. (a) What is demultiplexer? Explain the quadruple 2 to 1 multiplexer with neat logic diagram and function table.

Or

(b) Elaborate 3-bit even parity generator circuit with an example.

14. (a) Discuss in detail about S-R flip flop with an example.

Or

(b) Illustrate Serial In/Parallel Out Shift Registers with an example.

15. (a) Define binary counter. Explain 4-bit binary ripple Counter in detail.

Or

(b) Design a circuit using ROM for $F1(A1,A0)=\Sigma(1,2,3)$ $F2(A1,A0)=\Sigma(0,1)$.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Simplify using Quine McClausky tabulation method $F=\Sigma(0, 1,3,8,10,12,14,13)$.

17. Explain the working principle of BCD adder.

18. Implement the following function with a multiplexer $F(A,B,C,D)=\Sigma(0,1 ,3,4,8,7,14)$.

19. Discuss about the Master slave flip flop with an example.

20. Design a combinational circuit using ROM. The circuit accepts a 4-bit number and generates an output binary number equal to cube of input number.

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S–5779

Sub. Code
23BIT1S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Information Technology

OFFICE AUTOMATION

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is the purpose of scanner?

2. Write down any four output devices.

3. What is the purpose of formatting?

4. How to insert a video in PowerPoint slide?

5. Define data analytics.

6. How do you navigate spreadsheet?

7. What is meant by sorting?

8. Define primary key.

9. Compare text file with database.

10. What is the purpose of PowerPoint?

Part B

$(5 \times 5 = 25)$

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

11. (a) Expand GUI. Differentiate DOS and windows.

Or

(b) Describe the function of the memory unit.

12. (a) Discuss the importance of header and footer.

Or

(b) How bullets and numbering used to organize information effectively?

13. (a) Describe the mathematical functions in MS Excel with examples.

Or

(b) Write down the steps to insert chart.

14. (a) Explain the basic terms in the context of Database.

Or

(b) How a transaction done in Database system?

15. (a) Discuss the use of special objects in PowerPoint.

Or

(b) How to use themes in PowerPoint.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe about programming languages.

17. Discuss various printing options available in Word Processing software.

18. Explain the data validation in spreadsheet.

19. Explain the process of designing queries.

20. Describe about printing handouts in PowerPoint.

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S–5781

Sub. Code
23BIT2C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Information Technology

JAVA PROGRAMMING

(CBCS – 2023 onwards)

Time : Three Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Object-Oriented Programming (OOP) and briefly explain its benefits.

2. Differentiate between Java and C/C++ in terms of features and characteristics.

3. Define constants in programming and provide an example.

4. What is the purpose of variables in programming? Give an example of declaring and initializing a variable.

5. Define method overloading with an example in Java.

6. Explain the concept of inheritance in object-oriented programming.

7. Define multiple inheritance and provide an example.

8. How do you create and use packages in Java?

9. Explain the purpose of AWT Controls in Java programming.

10. How does the Scroll Pane component enhance user interface design?

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

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

11. (a) Discuss the evolution of Java, highlighting its history and major features.

Or

(b) Explain the structure of a Java program and its key components.

12. (a) Write a program to calculate the area of a circle using the formula $A = \pi r^{\wedge 2}$, where 'r' is the radius. Ensure user input for the radius.

Or

(b) Explain the concept of arrays in programming and illustrate with a code snippet for initializing an array of integers. Example: int numbers [5] = {1, 2, 3, 4, 5}.

13. (a) Write a Java program demonstrating method overloading using two methods with the same name but different parameters.

Or

(b) Describe the process of inheritance with sample program in java.

14. (a) Explain the concept of multithreading in Java with an example code snippet.

Or

(b) Discuss the importance of managing error and exceptions in programming, citing relevant examples.

15. (a) Write a Java code snippet to create a Button component and add an action listener to it.

Or

(b) Explain how you would implement a choice component to create a dropdown menu in Java AWT

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

Answer any **three** questions.

16. Design a Java program that demonstrates encapsulation, inheritance, and polymorphism concepts. Provide a brief explanation of each concept and how it's implemented in your program.

17. Design a program that accepts a list of integers from the user and finds the largest and smallest numbers in the list. Implement this program using arrays and decision-making statements. (Example: Input: 5, 10, 3, 8, 15 Output: Largest number: 15 Smallest number: 3)

18. What is package? State how to create and access user defined package in Java.

19. Write any four methods of File Input stream class give their syntax.

20. Design a Java applet that utilizes mouse events to draw shapes (e.g., circles, rectangles) based on user clicks.

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S–5782

Sub. Code
23BITA2

U.G. DEGREE EXAMINATION, APRIL 2025

Information Technology

Allied – INTERNET AND WEB DESIGN

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is the purpose of Telnet?

2. Mention the applications of E-commerce.

3. Why is HTML5 considered significant in web development?

4. What is the purpose of CSS in web design?

5. Which HTML tag is used to create a table?

6. List out the steps involved in creating a basic form in HTML.

7. What are JavaScript objects?

8. Specify the difference between break and continue statements in JavaScript.

9. Point out the primary purpose of the document object in web development,

10. What is an event handler?

Part B (5 × 5 = 25)

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

11. (a) Explain the primary function of FTP and provide an example of its usage.

Or

(b) Define the term "router" in the context of computer networking.

12. (a) Discuss the different types of navigation aids used in web design.

Or

(b) Describe the planning process for organizing site content, including considerations for usability, accessibility and user experience.

13. (a) Explore the various methods and techniques for formatting tables in HTML.

Or

(b) Analyze the use of checkboxes and option buttons in HTML forms and discuss their advantages, limitations, and best practices for implementation.

14. (a) Compare and contrast client-side and server-side JavaScript.

Or

(b) Discuss the concept of user-defined functions in JavaScript, including how they are declared, invoked and used to encapsulate reusable code.

15. (a) Discuss the purpose and usage of the Applet object in HTML for embedding Java applets into web documents.

Or

(b) Provide an overview of various event types in web development, including examples and their associated event handlers.

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

Answer any **three** questions.

16. Explain the role of search engines in information retrieval on the World Wide Web and provide their mechanisms and algorithms.

17. Examine the process of creating hyperlinks and anchors in HTML.

18. Discuss the impact of HTML5 on multimedia integration in web development, focusing on the introduction of audio and video elements and their benefits for content creators and users.

19. Critically assess the role of operators in JavaScript and examine their functionality, precedence rules, and practical applications in code.

20. Examine the role of the Image object in web development, considering its use in embedding and manipulating images within HTML documents.

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S–5783

Sub. Code
23BITA3

U.G. DEGREE EXAMINATION, APRIL 2025

Information Technology

Allied — MICROPROCESSOR AND MICROCONTROLLER

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is a microprocessor?

2. Recall the purpose of the data bus in the 8085 microprocessor.

3. What is the role of the SID pin?

4. Mention the role of MVI and MOV instruction.

5. State the function of the TRAP interrupt.

6. What is the role of role of the HOLD and HLDA?

7. Define the term port.

8. What is the objective of 8051 microcontroller?

9. Which bit in the TCON register starts Timer 0?

10. What is the role of the TR1 bit in the TCON register?

Part B

$(5 \times 5 = 25)$

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

11. (a) Interpret the internal data operations in 8085 microprocessor.

Or

(b) Explain the difference between register and register pair with example.

12. (a) Describe the purpose of branch instructions and give examples.

Or

(b) Classify the different types of instruction set.

13. (a) Describe how the SIM instruction is used in the 8085 microprocessor.

Or

(b) Differentiate between maskable and non-maskable interrupts with example.

14. (a) State the key features of the 8051 microcontroller.

Or

(b) Describe the function of the Vcc and GND pins on the 8051 microcontroller.

15. (a) Write down the steps involved in the execution of an interrupt in the 8051 microcontroller.

Or

(b) Classify the various operating modes in 8051 microcontroller.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Draw and explain the 8085 microprocessor architecture.

17. Describe the different types of data transfer instructions available in the 8085 microprocessor.

18. Interpret the role of the 8257 DMA controller in a microprocessor system.

19. Compare and contrast microcontrollers and microprocessors.

20. Describe the differences between timers and counters in the 8051 microcontroller.

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S–5784

Sub. Code
23BITA4

U.G. DEGREE EXAMINATION, APRIL 2025

Information Technology

Allied : MULTIMEDIA AND ITS APPLICATINS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is multimedia?

2. Provide the features of popular font design tools.

3. Point out the primary uses of still images in multimedia presentation.

4. Explain the role of color temperature in natural light photography.

5. Define the term path animation.

6. Comment on tweening.

7. What is the role of interface designer?

8. Write a note on audio specialist.

9. How do you manage panels in Adobe Animate?

10. What are the importances of managing workspaces in Adobe Animate?

Part B

$(5 \times 5 = 25)$

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

11. (a) Explain the different ways multimedia can be used in education.

Or

(b) Describe the relationship between hypermedia and hypertext.

12. (a) How can system sounds improve user interaction in multimedia applications?

Or

(b) How understanding natural light and color can enhance the quality of still images? Explain.

13. (a) Discuss the principles of animation.

Or

(b) Write a short note on video analog and digital technologies.

14. (a) Illustrate about the four primary stages in a multimedia project.

Or

(b) Identify the input and output devices for making multimedia.

15. (a) Enumerate the steps to work with tweens and symbols.

Or

(b) Point out the role of layers in character design within Adobe Animate.

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

Answer any **three** questions.

16. Describe the impact of computer technology on text formatting and design.

17. Compare and contrast the advantages and disadvantages of different image file formats in multimedia applications.

18. Explain the various animation techniques.

19. Discuss the importance of memory and storage devices.

20. Describe the process of creating an interactive motion graphic for the web using Adobe Animate.

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S–5785

Sub. Code
23BIT2S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Information Technology

BASICS OF INTERNET

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define the World Wide Web (WWW) and briefly explain its significance as a mass medium.

2. Write in brief the concept of hypertext and its role in shaping the accessibility of information on the internet.

3. Define the concept of metadata.

4. Write the concept of saving files in computer systems.

5. Write about the concept of viral content on the internet and its impact on user engagement.

6. Discuss the role of social media platforms in the dissemination of infotainment content.

7. Define demographic descriptions of internet audiences.

8. What are psychographic descriptions of internet audiences?

9. Define phishing and SQL injection as two common types of cybercrime. Provide a brief explanation of each.

10. List out the importance of using alt text in image tags for web accessibility and SEO optimization.

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

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

11. (a) Discuss the impact of the internet on traditional media industries such as publishing, broadcasting, and advertising.

Or

(b) Explain the structure of an HTML document using an example code snippet. Highlight the essential elements such as <html>, <head>, <title>, and <body>, and describe their respective roles in creating a web page.

12. (a) Describe how CSS (Cascading Style Sheets) allows web designers to control the layout, color, typography, and other visual aspects of webpages. Provide an example where CSS is used to create a responsive design for a webpage.

Or

(b) Discuss the significance of Bootstrap in modern webpage design, with examples.

13. (a) Describe infotainment content classifications online with examples and analyze the influence of current market technology and apps.

Or

(b) Assess the impact of presentation styles on user engagement, considering emerging tech and popular apps.

14. (a) Describe how marketers use demographic information such as age, gender, and location to target specific internet audiences. For instance, consider an online fashion brand, like Nike, Adidas.

Or

(b) Provide step-by-step instructions on creating hyperlink in HTML code. Illustrate with an example where a webpage contains a link to an external website related to the topic discussed on the page.

15. (a) How does data visualization aid in understanding complex cybersecurity threats? Provide examples of visualization tools and techniques used in cybersecurity analysis.

Or

(b) Discuss the significance of incorporating images in web development from a technical perspective. Provide examples of image optimization techniques and their impact on website performance.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Evaluate the significance of HTML forms in web development, discussing their purpose, structure, and functionality. Provide an example of "Bio-data form" creation using HTML form, including various input elements such as text fields, radio buttons, checkboxes, and submit buttons, along with their respective attributes.

17. Provide a detailed analysis of Meta Data's role in information retrieval and organization. Discuss its significance in the context of digital libraries and provide a case study showcasing improved data management and user experience.

18. Explore internet infotainment's evolution, future trends, and societal impacts, including tech like AR, VR, and AI, and apps such as TikTok and YouTube.

19. Evaluate the significance of demographic and psychographic descriptions in targeting internet audiences for online advertising campaigns.

20. Evaluate the role of machine learning algorithms in enhancing cybersecurity defenses. Provide a comprehensive overview of machine learning techniques used for threat detection and prevention, along with their strengths and limitations.

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S–5786

Sub. Code
23BIT2S2

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Information Technology

PROBLEM – SOLVING TECHNIQUES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Define the notion of algorithms.

2. What is the importance of identifying similarities among problems?

3. Implement an algorithm to exchange the values of two variables

4. Define the base conversion algorithm.

5. Implement an algorithm to find the square root of a number using Newton's method.

6. What is the generation of pseudo-random numbers algorithm used for?

7. Define array counting.

8. What is the significance of finding the kth smallest element in an array?

9. What is text line length adjustment?

10. What is the Towers of Hanoi problem?

Section B

$(5 \times 5 = 25)$

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

11. (a) Discuss the requirements necessary for solving problems by computer.

Or

(b) Discuss the concept of top-down design in problem-solving and explain how breaking down a problem into smaller, manageable subproblems can simplify the solution process.

12. (a) Write a program to approximate the value of the sine function using a mathematical series or approximation method.

Or

(b) Generate the first n Fibonacci numbers using an algorithm for Fibonacci Series generation.

13. (a) Develop a function to compute the greatest common divisor (GCD) of two integers using Euclid's algorithm or another efficient method.

Or

(b) Implement an algorithm to compute the prime factors of a given integer, including methods for trial division or factorization using prime numbers.

14. (a) Implement an algorithm to remove duplicates from an ordered array.

Or

(b) Create a function to find the maximum number in a set represented by an array.

15. (a) Discuss the challenges faced in text line editing and strategies to overcome them.

Or

(b) Explain the significance of permutation generation in various applications.

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

Answer any **three** questions.

16. Describe the different phases involved in the problem-solving aspect.

17. Write an algorithm to reverse the digits of the given integer and explain how it is working.

18. Explore the concept of generating prime numbers algorithmically and discuss methods for testing primality and generating large prime numbers efficiently

19. Explore the concept of the longest monotone subsequence and describe its properties, applications, and algorithmic complexity.

20. Create a linear pattern search algorithm to find occurrences of a given pattern within a text string.

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S–5787

Sub. Code
23BIT3C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Information Technology

PHP PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. How do you define constants?
2. Differentiate between echo and print statements.
3. Define Array.
4. Give the syntax of foreach.
5. Write the use of return statement.
6. What is the use of file_put_contents( )?
7. Define exception.
8. Distinguish Interface and abstract class.
9. What is meant by cookies?
10. How to delete session variables?

Part B (5 × 5 = 25)

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

11. (a) Discuss about PHP data types.

Or

(b) Write a note on Type casting with an example.

12. (a) Illustrate any five string functions with an example.

Or

(b) Explain extract and compact function. Give an example.

13. (a) Discuss the different methods of reading a file.

Or

(b) Demonstrate date and time functions.

14. (a) How does PHP handle errors and exceptions? Explain.

Or

(b) Explain about constructor and destructor with an example.

15. (a) How cookies differ from session? Discuss.

Or

(b) Write a note on data storing in cookies.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. List out and explain conditional statements with an example.

17. What are an index-based array and an associative array? Explain how to access elements in each type?

18. Explain different function call with an example.

19. Demonstrate how to handle multiple types of exceptions with an example.

20. Explain the use of cookie. When cookie is expired? Explain how it is created and retrieved.

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S–5788

Sub. Code
23BIT3S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Information Technology

CYBER FORENSICS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Identify the key steps in computer forensics investigation.

2. Point out the importance of encryption and decryption tools in military forensics.

3. Why volatile evidence is important in forensic investigation?

4. Differentiate logical and physical evidence collection.

5. Elucidate on Digital Evidence.

6. What is the purpose of computer image verification and authentication?

7. Elucidate on timeline analysis in computer forensics.

8. Point out any four litigation tools in cyber forensics.

9. What are the skills required to become a digital detective?

10. How can corrupted files be recovered?

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

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

11. (a) Demonstrate the steps involved in collecting digital evidence.

Or

(b) Analyze the concept of steganography and its significance.

12. (a) Examine the concept of chain of custody and its significance in digital forensics.

Or

(b) Explain the difference between file copying and forensic imaging.

13. (a) Describe the processing steps in cyber forensics.

Or

(b) Discuss the practical considerations in cyber forensics.

14. (a) Summarize the analysis of email and chat logs in computer forensics.

Or

(b) Explain the use of digital evidence in court proceedings.

15. (a) Enlighten the process of converting file formats.

Or

(b) Elaborate on technical approach to network forensics.

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

Answer any **three** questions.

16. Discuss the role of computer forensics specialist in legal case.

17. Classify the different types of evidence in computer forensics with example.

18. Describe the practical implementation of cyber forensics.

19. Discuss the challenges of analyzing technical surveillance devices.

20. Explain the role of digital detectives in reconstructing past events.

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S–5789	Sub. Code
	23BIT3S2

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Information Technology

ENTERPRISE RESOURCE PLANNING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Enterprise Resource Planning?

2. Who is ERP Vendors?

3. Define data mining.

4. What do you understand by product life cycle management?

5. Write a short note on open source.

6. What is meant by materials management?

7. Comment on employees.

8. Mention the role of SDLC.

9. Give any two merits of internet.

10. What do you understand by SAP?

Part B (5 × 5 = 25)

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

11. (a) State the objectives of ERP.

Or

(b) What are the components of ERP? Explain.

12. (a) Explain the limitations of system integration.

Or

(b) Highlight the objectives of data mining.

13. (a) Elucidate the financial modules of ERP system.

Or

(b) Give a snapshot of the ERP market.

14. (a) Narrate the ERP implementation life cycle.

Or

(b) Explain the role of SDLC.

15. (a) What are the objectives of e-commerce? Explain.

Or

(b) What are the tools using in ERP? Explain.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the benefits and limitations of ERP package.

17. Discuss the various methods of business process reengineering.

18. What are the benefits of customer relationship management? Discuss.

19. Describe the various factors and sub-factors that determine the success of ERP implementation.

20. Explain the features of ORACLE with suitable examples.

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S–5790

Sub. Code
23BIT4C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Information Technology

PYTHON PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is literal? Give an Example.

2. Name any two key features of Python.

3. What is a nested tuple?

4. Are lists in Python mutable or immutable?

5. How do you import a module in Python?

6. What is return statement?

7. Differentiate between runtime error and syntax error.

8. What is operator overloading?

9. List out an event in the context of GUI programming.

10. How can you retrieve the selected item from a List box?

Part B (5 × 5 = 25)

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

11. (a) Describe about data types with an example.

Or

(b) Discuss the potential applications of Python in emerging technologies.

12. (a) How do you clone a list in Python using copy( ) method? Explain.

Or

(b) Explain how to update an element in Tuple.

13. (a) Discuss various string manipulation techniques with an example.

Or

(b) Explain read and write operations in a file.

14. (a) Describe how methods are defined within a class.

Or

(b) Compare assert statements versus exceptions for handling errors.

15. (a) Explain the role of the pack, grid, and place geometry managers in Tkinter.

Or

(b) How can you insert and retrieve text from a text widget? Explain.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the different types of operators with an example.

17. Explore the concept of slicing and explain how slicing works.

18. Describe about different types of arguments and return statements.in function,

19. How does method overloading differ from method overriding? Give an example.

20. How do you create a Menu widget, cascading menus and submenus in Tkinter? Explain.

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S–5791

Sub. Code
23BIT4S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Information Technology

ROBOTICS AND ITS APPLICATIONS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Robotics.
2. What are the services available in Robotics? Give example.
3. What is the purpose of actuator in robotics?
4. Differentiate forward and inverse kinematics.
5. List out two challenges in localization.
6. How does GPS localization work?
7. What is connectivity graph in roadmap path planning?
8. How do robots recognize the objects?
9. Write down the primary application of Aerial Robots.
10. Point out any two types of Welding done by industrial robots.

Part B

$(5 \times 5 = 25)$

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

11. (a) Elaborate on components of a robotic arm.

Or

(b) Describe the swarm robotics and its applications.

12. (a) Illustrate the working principle of a DC servo motor.

Or

(b) Outline D-H matrix and its application in robotics.

13. (a) Analyze the concept of self-localization and mapping in robotics.

Or

(b) Describe the GPS localization system and its applications.

14. (a) Enlighten the components of a robotic vision system.

Or

(b) Describe object recognition and categorization in computer vision.

15. (a) Discuss the role of robots in nuclear decontamination.

Or

(b) Summarize the application of robots in spray painting.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Analyze the concept of humanoid robotics and its significance.

17. Derive the kinematic equations for two link planar (RR) robot.

18. Compare and contrast IR and vision based localization.

19. Explain the different types of path planning algorithm and their applications.

20. Explicate the various industrial applications of robots and their impact.

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S–5792

Sub. Code
23BIT4S2

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Information Technology

ORGANISATIONAL BEHAVIOUR

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define customer service.

2. What do you understand by work life balance?

3. What is attitude?

4. Give the meaning of motivation.

5. Define group.

6. Mention the two advantages of team.

7. What is organizational climate?

8. Why people resist changing?

9. What do you understand by resistance to change?

10. State any two sources of power.

Part B (5 × 5 = 25)

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

11. (a) Explain the organizational behavior models.

Or

(b) Do you think the knowledge of organizational behavior is really required for a manager? - Justify with examples.

12. (a) What are the factors determinants of job satisfaction of employees inside the organization? Discuss.

Or

(b) Explain perception process with illustration.

13. (a) List out the various types of teams.

Or

(b) How do leaders misuse power and explain with example.

14. (a) Discuss the concept of culture.

Or

(b) State the objectives of organizational structure.

15. (a) Analyze the characteristics of organizational development.

Or

(b) Examine the relationship between power and politics.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the importance of organizational behavior.

17. What are the factors determining of personality and values? Discuss.

18. Discuss the path goal leadership theory with an illustration.

19. List out the factors influencing organizational climate.

20. Describe the various types of conflict.

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