

S-0233

Sub. Code

23BIT1C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 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. What are constants?
2. Identify the categories of Language.
3. Why decision making statements?
4. Define the term Array.
5. Write the use of function.
6. Comment on recursion.
7. What are structures?
8. Write the general format of Union.
9. List the features of pointers.
10. Comment on chain of pointers.

Part B

(5 × 5 = 25)

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

11. (a) Explain the history of C language.

Or

(b) Write short notes on data types.

12. (a) Write a note on looping statements.

Or

(b) Write a program to find the sum of numbers in between two given numbers.

13. (a) Explain the elements of user defined function.

Or

(b) Illustrate how to define and call a function.

14. (a) Write a program to initialize the structure.

Or

(b) How to access the members of a structure?

15. (a) How pointers are used with arrays?

Or

(b) Write a program with pointer as function arguments.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Elucidate various types of operators.
 17. Write a program to split into digits (Ex. The digits of 523 are 5,2 and 3).
 18. Develop a program for matrix multiplication.
 19. Discuss on array of structure with a program.
 20. Develop a program to store the details of a set of students like register number, name, marks in 4 subjects in to a file. Read the file and show the total of each student.
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S-0234

Sub. Code

23BITA1

U.G. DEGREE EXAMINATION, NOVEMBER 2025

Information Technology

Allied — DIGITAL LOGIC FUNDAMENTALS

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is Number system?
2. What is Logic gate?
3. Draw 3-variable K- map.
4. What is called SOP?
5. What is called Encoder?
6. What is Combinational logic?
7. How will you obtain T-type flipflop from J-K flipflop.
8. What is called Latch?
9. List any two application of counter.
10. Expand SRAM and DRAM.

Part B

(5 × 5 = 25)

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

11. (a) What are the logic gates? Discuss along with Truth table.

Or

- (b) Convert

(i) $(0.513)_{10}$ to Octal.

(ii) $(673.124)_8$ to Hexadecimal.

12. (a) State and Prove Demorgan's theorem.

Or

- (b) Discuss about Product of Sum with example.

13. (a) Briefly discuss about Half-adder with diagram.

Or

- (b) Write a short notes about Demultiplexer with a block diagram.

14. (a) Discuss about R-S flipflop.

Or

- (b) Brief the working principles of Master Slave flipflop.

15. (a) Discuss about ROM and its types.

Or

- (b) Define Counter and list out its types.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain Binary code classifications in detail.
 17. Simplify the Boolean function $f(W, X, Y, Z) = WX'Y' + WY + W'YZ'$ using K-map.
 18. Design a 1 of 16 decoder with a neat diagram.
 19. Explain about Shift Registers and its types.
 20. Explain in detail about Ripple counter.
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S-0235

Sub. Code

23BIT1S1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

First Semester

Information Technology

OFFICE AUTOMATION

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is operating system?
2. Name the types of memory.
3. Write the purpose of formatting.
4. List the types of alignment.
5. What is spread sheet?
6. How to enter a formula in spread sheet?
7. What is record?
8. Comment on MS-Access.
9. Write the use of power point.
10. What is slide transition?

Part B

(5 × 5 = 25)

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

11. (a) Explain about input devices.

Or

(b) Write short notes on windows operating system.

12. (a) Illustrate the use of bullets in a document.

Or

(b) Give a note on header and footer.

13. (a) Explain the steps to create a chart in spread sheet?

Or

(b) How to prepare financial statement using spread sheet?

14. (a) How can you sort and index data?

Or

(b) Explain about searching in DBMS.

15. (a) Explain about slide type casting and viewing.

Or

(b) How to implement animation effects in a presentation?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Elucidate various kinds of output devices.
 17. Discuss about 'Edit' menu in detail.
 18. Prepare a worksheet to show your semester marks and show how to calculate total and average using formulas.
 19. Discuss about designing queries and reports.
 20. Prepare a presentation to show your college department details.
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S-0236

Sub. Code

23BIT1FC

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

First Semester

Information Technology

FUNDAMENTALS OF COMPUTERS

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What are two key characteristics of computers?
2. What is the role of the control unit?
3. State the benefit of using objective-oriented programming.
4. Define the term computer language.
5. Why is critical thinking important in problem-solving?
6. Mention one difficulty people often face when solving problems.
7. What are two key benefits of using functions in programming?
8. Give two examples of data types used in programming.
9. Give one advantage of using local variables over global variables.
10. What is the main benefit of dividing a program into modules?

Part B

(5 × 5 = 25)

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

11. (a) Illustrate the function of Arithmetic Logic Unit (ALU) in a computer.

Or

- (b) Explain the role of the output unit in a computer system.

12. (a) Explain high level language with example.

Or

- (b) Classify the different types of computer software.

13. (a) Write down the steps involved in the problem-solving process.

Or

- (b) Explain the role of algorithms in problem-solving.

14. (a) Explain the role of constants and variables in a computer program, and how they differ from each other.

Or

- (b) Draw the flowchart to find the greatest of three numbers.

15. (a) Explain the sequential logic structure in a program.

Or

- (b) Differentiate between *for loop* and *while loop* in programming.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. How does the Storage Unit function within a computer? Discuss.
 17. How does assembly language differ from machine language? Discuss.
 18. Discuss the different types of problems with example.
 19. Discuss the different types of operators in programming, providing examples of how they are used in expressions.
 20. How do decision-making structures work in programming? Explain with example.
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S-0237

Sub. Code

23BIT2C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Information Technology

JAVA PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Write any two features of OOP.
2. What is byte code?
3. Define variable.
4. Differentiate between *while loop* and *do-while loop*.
5. What is a static member in a class?
6. What do you mean by nesting of methods?
7. Define Multithreading.
8. What is the purpose of import statement?
9. What is the difference between Applet and Java application?
10. How do you initialize an Applet?

Part B

(5 × 5 = 25)

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

11. (a) Define Tokens. Explain any three token with an example.

Or

- (b) Explain the features of Java.

12. (a) Explain *if-else* statement with suitable program.

Or

- (b) List and explain different data types with an example.

13. (a) What is an abstract class, and how does it differ from a regular class?

Or

- (b) Analyze the keyword 'final'.

14. (a) Differentiate between checked and unchecked exceptions with an example.

Or

- (b) Explain about Thread Life Cycle.

15. (a) Explain the purpose of the Label, Button, and TextField components in AWT.

Or

- (b) Describe the AWT class hierarchy.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the following :

(a) JVM

(b) JDK

17. Briefly explain about array with an example.

18. Explain constructor overloading with an example.
 19. What is package? State how to create and access user defined package.
 20. Explain the following layout managers.
 - (a) Border layout
 - (b) Grid layout
 - (c) Flow layout
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S-0238

Sub. Code

23BITA2

U.G. DEGREE EXAMINATION, NOVEMBER 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. Define the term World Wide Web (WWW).
2. Elucidate about HTTP Protocol.
3. How can you create hyperlinks to other web pages using HTML?
4. List out the steps to create image map using HTML and CSS.
5. Name the HTML element used to embed a video.
6. How to create a dropdown list in HTML?
7. What is JavaScript?
8. Define client-side JavaScript.
9. How do you attach an event handler to an element in JavaScript?
10. What does the document object represent in JavaScript?

Part B

(5 × 5 = 25)

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

11. (a) Discuss the role of web servers and HTML.

Or

- (b) Analyze the impact of the internet on society.

12. (a) Explain briefly HTML tags for formatting text.

Or

- (b) Describe about CSS to create different font styles.

13. (a) How to create a simple table in HTML and specify its size? Explain.

Or

- (b) Discuss the different types of input fields available in HTML forms.

14. (a) Illustrate on callback function. How is it used in JavaScript?

Or

- (b) Summarize the details to manipulate arrays in JavaScript.

15. (a) Describe the role of the Anchor object in JavaScript.

Or

- (b) Illustrate the various mouse events available in JavaScript.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the following topics in details:
 - (a) Routers
 - (b) Gateways
 - (c) Bridges
 - (d) Switches.
 17. Discuss about creating HTML5 semantic layout.
 18. Explain the various formatting options available for tables in HTML.
 19. Describe the various control statements available in java script with example program.
 20. Analyze the concept of Event and Event Handlers.
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S-0239

Sub. Code

23BITA3

U.G. DEGREE EXAMINATION, NOVEMBER 2025

Information Technology

**Allied – MICROPROCESSOR AND
MICROCONTROLLER**

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Section A

(10 × 2 = 20)

Answer **all** questions.

1. Define Program counter.
2. Write short note on : Read and write operations in memory.
3. What is the use of ALE (Address Enable Latch) signal?
4. Write any two logical instructions available in 8085 microprocessors.
5. What is the purpose of SIM (Set Interrupt Mask) instruction in 8085?
6. Write short note on: Direct Memory Access (DMA) controllers.
7. What are the applications of microcontrollers?
8. How many ports are available in 8051 microcontrollers?
9. What is the use of (Timer Mode) TMOD control register in 8051 microcontrollers?
10. List the interrupt control registers available in 8051 microcontrollers.

Section B

(5 × 5 = 25)

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

11. (a) Explain microprocessor based system and its operations.

Or

- (b) Briefly explain about external initiated operations. What are its advantages and disadvantages?

12. (a) What are the two pins available in 8085 for serial communication and explain its significance?

Or

- (b) How the instructions are classified in 8085 microprocessors?

13. (a) Explain the Read Interrupt Mask (RIM) and SIM (Set Interrupt Mask) instructions.

Or

- (b) Write the features of 8257 Direct Memory Access (DMA) controller.

14. (a) Compare microprocessors and microcontrollers.

Or

- (b) Draw and explain the pin diagram of 8051 microcontroller.

15. (a) Write a note on timer/counter available in 8051 and its applications.

Or

- (b) Explain how the interrupt is executed in 8051 microcontroller.

Section C

(3 × 10 = 30)

Answer any **three** questions.

16. Narrate the internal data operations performed by Arithmetic Logic Unit (ALU) of 8085 microprocessor.
 17. Explain the functional block diagram of 8085 microprocessor.
 18. Explain the five interrupt signals in 8085? How they are classified into the groups based on their parameter?
 19. Explain the block diagram of 8051 microcontroller. What are its components? List its key features, common issues, applications and uses.
 20. Discuss in detail about (Timer Mode) TMOD control register (8 bit) and (Timer Control Register) TCON (8 bit) in 8051 with neat diagrams. Find out the timer modes, flags, gates, and modes for timer 0 and timer 1.
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S-0240

Sub. Code

23BITA4

U.G. DEGREE EXAMINATION, NOVEMBER 2025

Information Technology

Allied – MULTIMEDIA AND ITS APPLICATIONS

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. List the deliverables of multimedia.
2. What do you mean by hypermedia.
3. List various audio file formats.
4. What are the copyright issues for multimedia producers?
5. What is interlacing? What is the use of it?
6. What is the aspect ratio of HDTV?
7. Why do we need Small Computer System Interface (SCSI).
8. Write short note on: Universal Serial Bus (USB).
9. What is Adobe workspace? What is the best workspace for Adobe Animate?
10. What are the different types of tweens in adobe animate?

Part B

(5 × 5 = 25)

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

11. (a) Explain the use of multimedia in Home.

Or

- (b) Write short note on :
- (i) The Broadband Internet
 - (ii) Character sets and alphabets.

12. (a) Write short note on: Color dithering.

Or

- (b) Write short note on: MIDI (Musical Instrument Digital Interface) vs. Digital Audio.

13. (a) Briefly explain about making animations that work with examples.

Or

- (b) Discuss about Codecs, MPEGs, Codec Wars digital video containers. Give example for Codec.

14. (a) How will you determine which multimedia authoring system which is most appropriate for any given multimedia project?

Or

- (b) Briefly discuss common software programs used to handle text, graphics, audio, video, and animation in multimedia projects and discuss their capabilities.

15. (a) Write short note on: Character design through layer.

Or

- (b) How do you convert shapes into symbols for better organization in Adobe Animate?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. How will you use text in multimedia? Explain font editing and designing tools in multimedia.
 17. How will you make digital audio files? Draw and give Examples of quantizing and clipping. How will you set recording levels and edit digital recordings?
 18. Describe how analog and digital videos works with neat diagram.
 19. Explain the working principles of various memory and storage devices with diagram.
 20. How to use the timeline in Adobe Animate with modern timeline and timeline controls?
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S-0241

Sub. Code

23BIT2S1

B.Sc. DEGREE EXAMINATION, NOVEMBER 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. Difference between ordered list and unordered list.
2. Define Iframe.
3. Illustrate on adding images for web pages.
4. Describe shortly linking to video and audio file.
5. What is the role of social media platforms in providing infotainment?
6. Difference between informational and entertainment content.
7. List two demographic factors commonly used to describe internet audiences.
8. Name one way the internet has influenced modern lifestyles.
9. Define cybercrime.
10. Elucidate the potential role of AI in preventing future cybercrimes.

Part B

(5 × 5 = 25)

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

11. (a) Explain briefly linking to an E-mail address.

Or

- (b) Write a short notes on text items and objects.

12. (a) Describe the details of letter spacing and line spacing.

Or

- (b) Describe shortly creating background in CSS.

13. (a) How do blogs and vlogs serve as sources of infotainment? Provide examples.

Or

- (b) Assess how the blending of information and entertainment in online content affects public perception.

14. (a) Explain briefly about businesses use demographic and psychographic data.

Or

- (b) Analyze the effect of internet culture on consumer behavior and lifestyle trends.

15. (a) Discuss the impact of social engineering in the rise of cybercrimes.

Or

- (b) Explain how emerging technologies like AI are being used to combat cybercrime.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about the steps to design a web pages with example codings.
 17. Discuss the roles of cascading style sheets with example snippets.
 18. Analyze the different types of internet content classified as infotainment, focusing on their content and style.
 19. Describe the dual impact of the internet on individual lifestyles, considering access to information and digital addiction.
 20. Examine the potential future roles of governments, international organizations and private sectors in addressing the evolving threats of cybercrime.
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S-0242

Sub. Code

23BIT2S2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Information Technology

PROBLEM SOLVING TECHNIQUES

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What is top-down design in problem-solving?
2. How does breaking a problem into smaller parts help in problem-solving?
3. What is the result of converting the decimal number 10 to binary?
4. Which mathematical function is used to compute the sine of an angle?
5. What is the smallest divisor of 15 greater than 1?
6. List the prime factors of 18.
7. What is a monotone sequence in an array?
8. What is the pivot element in array partitioning?
9. Why would you search a text from left to right?
10. What is the main goal of keyword searching in text?

Part B

(5 × 5 = 25)

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

11. (a) Explain algorithm and how does it differ from a computer program.

Or

- (b) Interpret the concept of recursion with example.

12. (a) Explain the algorithm for exchanging the values of two variables.

Or

- (b) Explain the steps involved in computing the factorial of a number.

13. (a) Describe the process of finding the smallest divisor of an integer greater than 1.

Or

- (b) Explain the process of generating pseudo-random numbers.

14. (a) Explain the process of reversing the order of elements in an array.

Or

- (b) How can duplicates be removed from an ordered array? Explain with example.

15. (a) Describe the process of justifying text in a document.

Or

- (b) Compare the efficiency of left and right linear pattern search algorithms.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe a general problem-solving strategy that can be applied to various problems.
 17. How is the Fibonacci series generated? Explain the algorithm to find the n^{th} Fibonacci number.
 18. Explain how to compute the prime factors of an integer using a step-by-step algorithm.
 19. Explain the concept of partitioning an array. How is this technique used in algorithms like sorting?
 20. Describe the Towers of Hanoi problem. How can it be solved using a recursive algorithm?
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S-0243

Sub. Code

23BIT3C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 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. What is the primary purpose of PHP in web development?
2. Explain the difference between the GET and POST methods in form handling.
3. How can you modify an element in a PHP array?
4. Define String.
5. What is a user-defined function in PHP?
6. Write the difference between call by value and call by reference in PHP functions.
7. What is the difference between an exception and an error in PHP?
8. Write the purpose of the try, catch, and throw keywords in PHP.
9. What is the difference between a session and a cookie?
10. What is a cookie in PHP?

Part B

(5 × 5 = 25)

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

11. (a) Describe the steps involved in installing and configuring XAMPP/WAMP for PHP development.

Or

- (b) Explain the significance of control structures in PHP with examples of conditional and looping statements.

12. (a) Explain the process of creating and initializing both indexed and associative arrays in PHP. Provide examples for each.

Or

- (b) How do string-related library functions enhance the functionality of PHP? Provide examples of at least three such functions.

13. (a) Describe the steps to create and use a user-defined function in PHP. Provide an example.

Or

- (b) Explain the process of working with directories in PHP. Describe how to create, delete, and navigate directories, and provide examples of functions used for these operations.

14. (a) Describe the basic structure of exception handling in PHP using try, catch, and throw. Provide a simple example.

Or

- (b) Explain the importance of error tracking and debugging in PHP. What tools or techniques can be used for effective debugging?

15. (a) How do you destroy a session and its variables in PHP? Explain with an example.

Or

- (b) Write the importance of cookies in web applications. What are the limitations of using cookies?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the types of operators in PHP with examples and their applications in web development.
17. Describe the anatomy of arrays in PHP, including their creation, modification, and processing using loops. Provide code examples to illustrate each concept.
18. Elaborate on the concept of recursive functions in PHP. Explain their advantages and potential pitfalls. Provide a practical example where a recursive function is used.
19. Explain PHP exception handling using try, catch, and throw. Provide a code example to show how they manage exceptions.
20. Discuss cookies in PHP, covering setting, storing data, and deleting cookies with examples.
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S-0244

Sub. Code

23BIT3S1

B.Sc. DEGREE EXAMINATION, NOVEMBER 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. Define Computer Forensics.
2. List out any two types of law enforcement.
3. What is meant by Volatile Evidence?
4. What is data recovery.
5. Define digital evidence.
6. What is authentication in computer forensics?
7. What is meant by forensic identification?
8. Comment electronic evidence.
9. Define digital detective.
10. What is Reconstructing?

Part B

(5 × 5 = 25)

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

11. (a) Write short notes on Computer Forensic Technology.

Or

- (b) Explain the Computer Forensics Services.

12. (a) Discuss the Types of Evidence.

Or

- (b) Describe the Controlling Contamination.

13. (a) Elaborate the Preservation of digital evidence.

Or

- (b) Discuss the Special needs of Evidential Authentication.

14. (a) Explain the Identification of data and time travel.

Or

- (b) Discuss about discovery of electronic evidence.

15. (a) Explain the Damaging Computer Evidence.

Or

- (b) Describe the Unusable file formats.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the Types of Law Enforcement.
 17. Discuss in detail about Evidence Collection and Data Seizure.
 18. Describe about Legal Aspects of collecting and preserving computer forensic evidence.
 19. Explain in detail about Electronic Document Discovery.
 20. Discuss documenting the intrusion on destruction of data.
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S-0245

Sub. Code

23BIT3S2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Information Technology

ENTERPRISE RESOURCE PLANNING

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What is an Enterprise?
2. List out any two direct benefits of ERP system.
3. Define Product Life Cycle Management.
4. Define data warehouse.
5. What is meant by open source?
6. List out any two functional model of ERP software.
7. What is the role of SSAD?
8. Define Consultants in ERP.
9. What is Internet?
10. What are the critical successes in ERP?

Part B

(5 × 5 = 25)

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

11. (a) Explain the conceptual model of ERP.

Or

- (b) Write short notes on ERP Vendors.

12. (a) Discuss the Business Process Reengineering.

Or

- (b) Describe about ERP's Role in Logical and Physical Integration.

13. (a) Explain the Financial Modules of ERP.

Or

- (b) Discuss about CRM.

14. (a) Explain the ERP Implementation Life Cycle.

Or

- (b) Write short notes on Vendors and Employees.

15. (a) Explain the Failure factors of ERP.

Or

- (b) Describe about SAP.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the Structure of ERP.

17. Discuss about the role of common shared Enterprise database.

18. Describe about Supply Chain and Customer Relationship Applications.
 19. Explain in detail about Major role of SDLC/SSDA.
 20. Explain about Oracle format to case study.
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S-0246

Sub. Code

23BIT4C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Information Technology

PYTHON PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Define keywords.
2. Why indentation is important in Python?
3. What is a nested list?
4. How set differ from list?
5. Name three common file modes used when opening files.
6. How to find a sub string of a string?
7. What is the purpose of exception handling?
8. Define Inheritance.
9. Elucidate widget in GUI programming.
10. What is the function of a Scale widget?

Part B

(5 × 5 = 25)

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

11. (a) Discuss different types of statements with examples.

Or

- (b) Explain input() and print() functions with an example.

12. (a) Distinguish append() and extend() methods in list.

Or

- (b) Compare and contrast shallow cloning and deep cloning.

13. (a) Write a note on defining and calling function.

Or

- (b) How do string methods strip(), lstrip() and rstrip() differ from each other? Explain.

14. (a) Discuss about class methods and static methods.

Or

- (b) Illustrate finally block in exception handling.

15. (a) Explain about Label widget and its attributes in Tkinter.

Or

- (b) Describe about event handlers with an example.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain *looping* statements with an example.
 17. Define Tuple? How to access, update and delete an element in tuple.
 18. Explain about file opening, updating and closing operations. Discuss in detail.
 19. Evaluate the built in exception with an example.
 20. How do you bind keyboard events, Mouse events to a widget in Tkinter? Explain in detail.
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S-0247

Sub. Code

23BIT4S1

B.Sc. DEGREE EXAMINATION, NOVEMBER 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** the questions.

1. What is AI in robotics?
2. Differentiate industrial robots and service robots.
3. Mention three types of motors used in robotics.
4. What is the purpose of strain gauge-based force torque sensor?
5. Bring out the advantages of vision based localization.
6. What is meant by kidnapped robot problem?
7. How do robots avoid obstacles in path planning?
8. What do you mean by depth measurement in computer vision?
9. List out any two military applications of robots.
10. How is AI used in robots?

Part B

(5 × 5 = 25)

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

11. (a) Narrate the history and evolution of robotics.

Or

- (b) Demonstrate the significance of workspace and work envelop in robotics.

12. (a) Compare and contrast internal and external sensors.

Or

- (b) Derive the kinematic equation for a differential wheel robot.

13. (a) Describe the challenges in localizations.

Or

- (b) Enumerate on ultrasonic based localization and its limitations.

14. (a) Explicate the importance of path planning in robotics.

Or

- (b) How robots avoid obstacles in path planning? Explain.

15. (a) Write the uses of Aerial robots in surveillance.

Or

- (b) Describe the use of industrial robots in assemble operations.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Compare and contrast different types of end effectors.
 17. Explain the design and development process of robotic arm.
 18. Analyze the concept of SLAM and its importance in robotics.
 19. Describe the application of visual inspection in robotics.
 20. Explicate the uses of robots in continuous and spot welding.
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S-0248

Sub. Code

23BIT4S2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Information Technology

ORGANIZATIONAL BEHAVIOUR

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Define organizational behavior.
2. What do you understand by organizational ethics?
3. List out the learning process.
4. Define personality.
5. Is a group differ from team?
6. Write a short note on leadership.
7. Mention the meaning of organizational culture.
8. What is organizational climate?
9. Define conflict.
10. Mention the relationship between power and politics.

Part B

(5 × 5 = 25)

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

11. (a) State the nature of organizational behavior.

Or

- (b) What are the scopes of organizational behavior? Explain.

12. (a) Describe the learning theories in detail.

Or

- (b) Explain the importance of motivation in organizations and also describe the types of motivation.

13. (a) Describe the techniques of group decision making.

Or

- (b) Compare leader with manager.

14. (a) Explain the importance of organizational designs.

Or

- (b) List out the factors affecting organizational climate.

15. (a) Describe Lewin's three step model for organizational change.

Or

- (b) Mention the process of conflict.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the contributions of various discipline of organizational behavior.
 17. What are the components of attitude and how does attitude determining the behavior of an individual.
 18. Describe the different styles of leadership.
 19. Analyze the characteristics of organizational culture.
 20. Explain the organizational change process and suggest ways to overcome the resistance to change.
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S-0249

Sub. Code

23BIT5C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Information Technology

DATA COMMUNICATIONS AND NETWORKING

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. List out the components of data communication system.
2. List the types of topologies.
3. What is throughput?
4. Name the causes of impairment.
5. Define flow control.
6. Write the advantages of piggybacking.
7. Define routers and repeaters.
8. Find the destination address for FF:FF:FF:FF:FF:FF.
9. Mention the use of routing table.
10. Define fragmentation.

Part B

(5 × 5 = 25)

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

11. (a) Write about categories of Network.

Or

- (b) Discuss about physical and logical address.

12. (a) Illustrate the process of delta modulation.

Or

- (b) Write short notes on wireless transmission waves.

13. (a) Elucidate the components of packet switching.

Or

- (b) Explain about selective repeat protocols.

14. (a) Write short notes on Gigabit Ethernet

Or

- (b) Differentiate between active and passive hubs.

15. (a) Compare direct and indirect delivery.

Or

- (b) Discuss about multicast routing protocols.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Elaborate the OSI layer model.

17. Discuss about Guided media.

18. Elucidate error detection and correction methods.

19. Give a detailed note on IPv4 classful addressing.

20. Explain in detail about distance vector routing method.

S-0250

Sub. Code

23BIT5C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Information Technology

.NET PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Expand OLE and COM.
2. What is JIT compiler?
3. Define VB.Net.
4. What is method?
5. What is the use of catch?
6. Define event.
7. Write the use of radio button control.
8. Mention the use of Base class.
9. What is data provider?
10. Define control based objects.

Part B

(5 × 5 = 25)

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

11. (a) Write the steps to build a .NET DLL components.

Or

- (b) Discuss the method to create .NET classes and components.

12. (a) Illustrate programming elements of VB.NET.

Or

- (b) How do you implement interface in a class?

13. (a) Explain how will you create various types of message box.

Or

- (b) Differentiate HScrollbar and VScrollbar controls.

14. (a) Briefly explain about HTTP Response properties.

Or

- (b) List out validation controls and explain any two.

15. (a) Explain how to add connectionless class in oracle server.

Or

- (b) Discuss how connection class is used in ADO.NET.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain various components of visual studio IDE.
 17. Elaborate the various operators available in VB.NET.
 18. Discuss about Radio button, Check box, List box.
 19. Elucidate list control classes to display list.
 20. Explain about the Command and DataReader classes.
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S-0251

Sub. Code

23BIT5C3

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Information Technology

E-COMMERCE AND DIGITAL MARKETING

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Define Electronic Data Interchange (EDI).
2. Name any two E-Commerce infrastructure requirements.
3. Give an example of Business to Government (B2G) E – Commerce.
4. What is the role of strategy in E – Commerce?
5. Why do we need an electronic payment system?
6. Define biometric authentication.
7. What is a digital marketing strategy?
8. Define ‘customized messaging’.
9. Expand SEO and its uses.
10. List and explain the different types of display ad formats.

Part B

(5 × 5 = 25)

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

11. (a) Explain the history and evolution of E – Commerce.

Or

- (b) Write a short note on E – Commerce infrastructure.

12. (a) Discuss the B2B and B2G models in detail.

Or

- (b) What are the major factors influencing the success of E – Commerce? Explain with examples.

13. (a) Compare and contrast Credit Cards and Debit Cards in electronic payments.

Or

- (b) What are the ethical and legal issues related to e-commerce? Explain with examples.

14. (a) Discuss the POEM framework with examples.

Or

- (b) Explain the role of content in a digital marketing plan.

15. (a) Expand PPC, its working model, benefits, and platforms used.

Or

- (b) How can advertisers choose where their display ads appear online?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain EDI. Describe its components, working, features, and advantages in detail.
 17. Evaluate the role of strategic planning in the success of E – Commerce businesses.
 18. Illustrate the working and benefits of prepaid and postpaid payment mechanisms.
 19. Analyze the POEM framework and its relevance in developing a digital strategy.
 20. What is display advertising? Describe its terminology, types, formats and ad placement techniques.
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S-0252

Sub. Code

23BIT5E1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Information Technology

**Elective – RELATIONAL DATABASE MANAGEMENT
SYSTEM**

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Who are the actors on the scene in DBMS?
2. Define the term 'Schema'.
3. What are constraints?
4. Comment on Tractions.
5. What is ER model?
6. When an entity set will be called as Weak entity set?
7. Define the term 'Normalization'.
8. What is functional dependency?
9. Expand PL/SQL.
10. What are triggers?

Part B

(5 × 5 = 25)

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

11. (a) Explain the advantages of using DBMS.

Or

- (b) Write a note on database languages.

12. (a) Explain the basics of Relational model.

Or

- (b) Give a note on update operations in relational model.

13. (a) Identify the types of entity sets and explain.

Or

- (b) Explain the term 'Key' and its types.

14. (a) Explain first normal with an example.

Or

- (b) What are the types of functional dependency?

15. (a) Explain the structure of PL/SQL block.

Or

- (b) Write the syntax for creating procedures and functions.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss the architecture of DBMS with a neat diagram.
 17. Describe the unary and binary relational algebra operations in detail.
 18. Annotate EER model with suitable illustration.
 19. Illustrate third normal form and mention how is the BCNF vary from it.
 20. Demonstrate PL/SQL with triggers in detail.
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S-0253

Sub. Code

23BIT5E2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Information Technology

Elective — DATA MINING

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define data mining.
2. What is quantile plot?
3. Comment on frequent pattern with example.
4. What is dynamic itemset counting?
5. Mention the attribute selection measures used in decision tree.
6. Define the term confusion matrix.
7. What is data segmentation?
8. List the advantages of grid based methods.
9. Mention the challenges of outlier detection.
10. What are the types of Statistical outlier detection methods?

Part B

(5 × 5 = 25)

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

11. (a) Discuss the major issues in Data mining.

Or

- (b) Write short notes on histogram.

12. (a) How do you generate association rules from frequent itemsets?

Or

- (b) Write the pruning strategies to mine closed patterns.

13. (a) Explain about Naïve Bayesian classification method.

Or

- (b) Illustrate cross validation methods.

14. (a) Differentiate Agglomerative versus Divisive Hierarchical Clustering.

Or

- (b) Explain Statistical information Grid clustering technique.

15. (a) Explain about the categories of outliers.

Or

- (b) Discuss about detection of multivariate outliers.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the major tasks in data preprocessing.
 17. Explain a pattern-growth approach for mining frequent itemsets.
 18. Discuss about decision tree induction classification.
 19. Elucidate the DBSCAN clustering algorithm.
 20. Explain about outlier detection methods.
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S-0254

Sub. Code

23BIT5E3

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Information Technology

Elective — ARTIFICIAL INTELLIGENCE

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What is Artificial Intelligence (AI)?
2. Mention two real-world applications of AI.
3. Define a heuristic search.
4. What is the MinMax algorithm?
5. List out advantage of using predicate logic in knowledge representation.
6. Can we use Bayes' theorem to construct statistical models?
7. What kind of independence in probabilistic reasoning?
8. Identify a situation where game theory can be applied.
9. State the purpose of exploration-based learning.
10. What is meant by utility theory?

Part B

(5 × 5 = 25)

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

11. (a) Explain the scope of Artificial Intelligence.

Or

- (b) Write a short note on AI programming techniques.

12. (a) Elucidate in detail the concept of problem space with a suitable example.

Or

- (b) Describe how alpha – beta pruning improves the MinMax algorithm.

13. (a) Discuss various logic-based approaches for KR with suitable examples.

Or

- (b) Elaborate on structured representations such as frames, semantic networks.

14. (a) Describe the steps involved in partial order planning.

Or

- (b) Write a detailed note on the structure and components of a Bayesian network.

15. (a) Explain how decision theory models used in the process of decision-making.

Or

- (b) Compare learning from explanation and learning from exploration.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the different types of intelligent agents with examples.
 17. Discuss problem-solving through state space search with suitable examples.
 18. Explain the principles of KR using predicate logic.
 19. Bring out a detailed study on construction and use of planning graphs.
 20. Explain elementary game theory in detail.
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S-0255

Sub. Code

23BIT5E4

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Information Technology

Elective — MACHINE LEARNING

(CBCS – 2023 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Supervised learning.
2. What is overfitting?
3. List the types of smoother.
4. What are Nonparametric methods?
5. Define the term neural network.
6. Write the benefits of parallel processing.
7. Mention the use of voting.
8. Define weak and strong learners.
9. What is data transformation?
10. List the feature selection methods.

Part B

(5 × 5 = 25)

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

11. (a) Discuss about regression.

Or

(b) Write short notes on discriminant functions.

12. (a) Explain about Tuning Model Complexity.

Or

(b) Write about nonparametric classification.

13. (a) Explain about Gradient Descent approach.

Or

(b) How to train a perceptron?

14. (a) How do you combine base classifiers by cascading method?

Or

(b) Explain about temporal difference learning.

15. (a) Explain about the python libraries for data visualization.

Or

(b) Discuss about the feature selection methods.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Define noise anomaly and describe interpretation of noise.
 17. Explain about any two Nonparametric density estimation.
 18. Discuss about Multiplayer Perceptron in neural network.
 19. Elucidate the adaboost algorithm.
 20. Explain the implementation of decision tree algorithm in python.
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