S–0741

Sub. Code
23VSD1C1

B.Voc. DEGREE EXAMINATION, NOVEMBER 2025

First Semester

Software Development

FUNDAMENTALS OF C PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define keywords and identifiers in C.

2. What are symbolic constants? Give an example.

3. Explain the purpose of goto statement.

4. What is a nested if-else statement? Give an example.

5. Differentiate between one-dimensional and two-dimensional arrays.

6. How are string variables declared and initialized in C?

7. What is recursion? Give an example.

8. How is an array passed to a function?

9. What is the purpose of the size of operator in structures?

10. Define pointers. How do you declare a pointer variable?

Part B

$(5 \times 5 = 25)$

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

11. (a) Explain the precedence and associativity of arithmetic operators.

Or

(b) Discuss different types of type conversions in C.

12. (a) Describe the different operators in C with examples.

Or

(b) Explain the switch statement with an example.

13. (a) Write a C program to find the sum of elements in a one-dimensional array.

Or

(b) Describe any four string-handling functions in C.

14. (a) Explain the different categories of user-defined functions.

Or

(b) How are structures passed to functions? Explain with an example.

15. (a) Explain the concept of pointer arithmetic.

Or

(b) Discuss error handling during file I/O operations.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the basic structure of a C program with an example.

17. Explain different types of loops in C with examples.

18. Write a program to find the largest and smallest number from an array.

19. Describe the concept of recursion with a suitable program.

20. Write a program demonstrating the use of pointers and functions.

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S–0742

Sub. Code
23VSDA1

U.G. DEGREE EXAMINATION, NOVEMBER 2025

Software Development

Allied – FUNDAMENTALS OF DIGITAL COMPUTERS AND PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define computer literacy and state its importance in the modern world.

2. List two characteristics of a computer and briefly explain them.

3. Draw the truth table for an AND gate with two inputs.

4. What is a universal logic gate? Name two universal gates.

5. What is a multiplexer? State its primary function.

6. Differentiate between a multiplexer and a demultiplexer.

7. What is the role of an Arithmetic Logic Unit (ALU) in a computer?

8. Define a fast adder and its advantage over a ripple carry adder.

9. Define an algorithm and give one example.

10. What is a flowchart? Draw the symbol for a decision block.

Part B (5 × 5 = 25)

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

11. (a) Explain the technical evolution of computers, highlighting key milestones from mechanical to modern electronic computers.

Or

(b) Describe the organization of a computer system, focusing on the role of the CPU and its components.

12. (a) Describe the NOT, OR, and AND gates with their truth tables and explain how they form the basis of digital circuits.

Or

(b) Explain the concept of universal logic gates (NOR and NAND) and illustrate how a NOR gate can be used to implement an AND gate.

13. (a) What is a multiplexer? Explain its working principle with a 4:1 multiplexer circuit diagram and truth table.

Or

(b) Describe the operation of a 1-to-16 demultiplexer and its applications in digital systems.

14. (a) Explain the process of binary addition and subtraction with an example of 4-bit numbers.

Or

(b) Describe the 2's complement representation and demonstrate its use in performing subtraction of two binary numbers.

15. (a) What is a flowchart? Explain its basic symbols and draw a flowchart for finding the largest of three numbers.

Or

(b) Describe the difference between sequential, selection, and iterative programming structures with examples of each.

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

Answer any **three** questions.

16. Explain the technical evolution of computers, highlighting the key milestones from the first generation to modern computers. Discuss how hardware and software advancements contributed to this evolution.

17. Explain the basic and universal logic gates (NOT, OR, AND, NOR, NAND) with their truth tables and applications. Demonstrate how NOR and NAND gates can be used to implement any logic function.

18. Explain the working of multiplexers and demultiplexers with their block diagrams and truth tables. Discuss their applications in data processing circuits.

19. Explain the 2's complement representation and its significance in binary arithmetic. Demonstrate binary addition and subtraction using 2's complement with examples.

20. Explain the concept of algorithms and flowcharts in programming. Develop an algorithm and flowchart to solve the problem of finding the factorial of a given number using iterative programming structure.

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S–0743

Sub. Code
23VSD2C1

B.Voc. DEGREE EXAMINATION, NOVEMBER 2025

Second Semester

Software Development

WEB TECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. How does a DNS (Domain Name System) work?

2. Mention two differences between HTTP and HTTPS.

3. What are the differences between ordered and unordered lists in HTML?

4. Give two examples of special characters used in HTML.

5. Define the CSS Box Model?

6. How does the 'id' selector differ from the 'class' selector in CSS?

7. List two types of operators used in JavaScript.

8. Difference between '==' and '==' in JavaScript?

9. What is an XML name space?

10. How are events handled in JavaScript?

Part B (5 × 5 = 25)

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

11. (a) Explain the working of SMTP Server with an example.

Or

(b) Dissect the importance of the W3C in web standards.

12. (a) Explain the use of forms in HTML with an example.

Or

(b) Examine the importance of tables in structuring web content.

13. (a) Explain the concept of the CSS Box Model with a diagram.

Or

(b) Compare inline, internal, and external CSS with examples.

14. (a) Explain the use of conditional statements in JavaScript with examples.

Or

(b) Analyze the role of functions in JavaScript and how they enhance code re usability.

15. (a) Compare the use of inline event handlers versus external event listeners in JavaScript.

Or

(b) Illustrate how to create a simple XML document and parse it using JavaScript.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Analyze the evolution of the World Wide Web and its impact on modern web development.

17. Illustrate the process of designing a complete web page using various HTML tags learned so far.

18. How CSS has evolved over time and its importance in modern web design.

19. Evaluate the importance of event handling in JavaScript and its applications in interactive web design.

20. Explain the role of XML in web development and its advantages over other data formats.

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S–0744

Sub. Code
23VSDA2

U.G. DEGREE EXAMINATION, NOVEMBER 2025

Software Development

Allied – OPERATIONS RESEARCH

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List the main phases of OR

2. Define decision-making in OR

3. State about slack variables

4. What is an artificial variable?

5. What is Hungarian method?

6. Differentiate assignment and transportation problems.

7. Mention the objective of TP

8. What is degeneracy in TP?

9. Define earliest start time and latest finish time

10. State two applications of PERT.

Part B (5 × 5 = 25)

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

11. (a) Discuss the various classification schemes of models.

Or

(b) Explain the nature of Operation Research and limitations

12. (a) A company manufactures two products A and B. These products are processed in the same machine. It takes 10 minutes to process one unit of product A and 2 minutes for each unit of product B and the machine operates for a maximum of 35 hours in a week. Product A requires 1kg and B 0.5kg of raw material per unit, the supply of which is 600kg per week. Market constraints on product B is known to be minimum of 800 units every week. Product A costs \$5 per unit and sold at \$10. Product B costs \$5 per unit and can be sold in the market at a unit price of \$8. Formulate the LPP to maximize the profit.

Or

(b) Use Simplex method to solve the following LPP:

Maximize $Z = 3x_1 + 2x_2 + 3x_3$ subject to the constrains

$2x_1 - 3x_2 \leq 3$

$x_1 + 2x_2 + 3x_3 \geq 5$

$3x_1 + 2x_3 \leq 2$

and $x_1, x_2, x_3 \geq 0$

13. (a) Give the mathematical formulation of an Assignment Problem?

Or

(b) A salesman is planning to tour cities B, C, and D starting from his home city A. The inter-city distances are shown in the following table:

City	A	B	C	D	E
A	∞	103	188	136	38
B	103	∞	262	176	52
C	188	262	∞	85	275
D	136	176	85	∞	162
E	38	52	275	162	∞

How should he plan his tour so that (i)he visits each of the cities only once, and (ii) travels the minimum distance.

14. (a) Obtain an initial basic feasible solution to the following Transportation Problem using Least Cost Method.

Origin	D_1	D_2	D_3	D_4	Capacity
O_1	1	2	3	4	6
O_2	4	3	2	0	8
O_3	0	2	2	1	10
Demand	4	6	8	6	

Or

(b) Obtain the initial basic feasible solution to the following transportation problem by NWCM.

Origin	D_1	D_2	D_3	D_4	Availability
O_1	5	3	6	2	19
O_2	4	7	9	1	37
O_3	3	4	7	5	34
Demand	16	18	31	25	

15. (a) Draw a Network for the following project:

F<J; B<C, D; D<G; C<E, F; E<F; G<H; H<J; J<K.A is the starting event.

Or

(b) A small project consists of seven activities for which the relevant data are given below. Draw the Network and find the Project Completion Time.

Activity	Preceding activities	Activity Duration (days)
A	–	4
B	–	7
C	–	6
D	A, B	5
E	A, B	7
F	C, D, E	6
G	C, D, E	5

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What are the advantages and disadvantages of Operation Research model?

17. Use Graphical method to solve the following LPP:

Maximize $z = 4x_1 + 10x_2$ subject to the constraints

$2x_1 + x_2 \leq 50$

$2x_1 + 3x_2 \leq 100$

$2x_1 + 3x_2 \leq 90$

and $x_1, x_2 \geq 0$

18. Solve the following Assignment Problem.

	A	B	C	D	E
1	4	3	6	2	7
2	10	12	11	14	16
3	4	3	2	1	5
4	8	7	6	9	6

19. Find the initial solution to the following Transportation Problem to maximize the profit by Vogel's Approximation method.

	Destination				
Sources	A	B	C	D	Supply
1	15	1	42	33	23
2	80	42	26	81	44
3	90	40	66	60	33
Demand	23	31	16	30	

20. A small maintenance project consists of the following jobs whose precedence relationship is drawn below.

Job	1–2	1–3	2–3	2–5	3–4	3–6	4–5	4–6	5–6	6–7
Duration (Days)	15	15	3	5	8	12	1	14	3	14

(a) Draw an arrow diagram representing the project.

(b) Find the total float for each capacity

(c) Find the critical path and the total project duration.

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S–0745

Sub. Code
23VSD3C1

B.Voc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Software Development

OPERATING SYSTEMS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define operating system.

2. Differentiate between protection and security in file system.

3. Define semaphores.

4. Compare process and thread.

5. Define the term Waiting time and Turnaround time in reference to scheduling algorithms.

6. What is swapping?

7. Define paging.

8. Write two advantages of virtual memory concept.

9. What is a sequential-access file?

10. What are the objectives of file management system

Part B (5 × 5 = 25)

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

11. (a) Discuss the various structure of an operating systems in detail.

Or

(b) Elaborate on the types of system calls.

12. (a) How process synchronization is achieved using semaphores? Give an example.

Or

(b) Write about critical regions and monitors.

13. (a) Explain FIFO and Round Robin CPU scheduling algorithm. Why do we need?

Or

(b) State and explain the methods involved in recovery from deadlocks.

14. (a) Elaborate paging with an example and a diagram.

Or

(b) What is virtual memory? Discuss the benefits of virtual memory techniques.

15. (a) Explain file system architecture.

Or

(b) Write a short note on disk scheduling algorithm.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the various operations performed by an operating system.

17. Discuss in detail the critical section problem and also write the algorithm for ReadersWriters Problem with semaphores.

18. Write Bankers algorithm for deadlock avoidance. Explain with an example.

19. Explain the various memory allocation techniques.

20. Explain contiguous allocation and linked allocation of disk space with an examples.

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S–0746	Sub. Code 23VSD4E1

B.Voc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Software Development

Elective – DATA COMMUNICATION NETWORKS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Fourier Analysis.
2. Compare PAN and LAN.
3. What is UWB?
4. Define VSAT.
5. Write a note on NIC.
6. Define ALOHA.
7. List out the types of Routing algorithms.
8. Describe MANET.
9. Define the term Transport Entity.
10. Give example for Substitution Cipher.

Part B (5 × 5 = 25)

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

11. (a) Difference between Connection-oriented and Connectionless service.

Or

(b) Write a note on Bandwidth-limited Signals.

12. (a) Describe about Electromagnetic Spectrum.

Or

(b) What are the services provided by Data Link Layer to Network Layer? Explain.

13. (a) Discuss about Utopian Simplex Protocol.

Or

(b) Illustrate Bluetooth architecture with neat sketch.

14. (a) How to implement connection oriented service? Explain.

Or

(b) Discuss in detail about ICMP.

15. (a) Explain about the principles of Cryptography in detail.

Or

(b) How to establish a connection in Transport layer? Explain.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Illustrate the various layers of OSI reference model with neat sketch.

17. Discuss about Geostationary Satellites in detail.

18. Illustrate Bluetooth protocol stack with neat sketch.

19. Write a detailed note on IP Addresses.

20. Describe in detail about Berkeley Sockets with neat diagram.

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S–0748

Sub. Code
23VSD4C1

B.Voc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Software Development

FUNDAMENTALS OF ACCOUNTING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define accounting.

2. List any two functions of accounting.

3. From the following information, prepare trading account for the year ended 31.12.2024.

Particulars	Rs.
Opening stock (1.1.2016)	10,000
Purchases	26,100
Sales	40,600
Closing Stock (31.12.2016)	13,500

4. Compute cost of goods sold from the following information :

Particulars	Rs.
Opening stock	8,000
Purchases	60,000
Direct expenses	5,000
Indirect expenses	6,000
Closing stock	9,000

5. What are the causes for depreciation?

6. State any two advantages of straight line method of depreciation.

7. What are the charateristics of a computer?

8. Define Informations Technology.

9. Define Computerized Accounting.

10. Define Manual Accounting.

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

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

11. (a) Deepak is a dealer in stationery items. From the following transactions, pass journal entries for the month of January and February, 2018.

Jan.		Rs.
1	Commenced business with cash	2,00,000
2	Opened a bank account by depositing cash	1,00,000
3	'A 4 papers' sold on credit to Padmini and Co.	60,000

Jan.		Rs.
4	Bills received from Padmini and Co. for the amount due	
5	Bills received from Padmini and Co. discounted with the bank	58,000
Feb.		
15	Bills of Padmini and Co. dishnoured	

Or

(b) Write a brief note on accounting equation approach of recording transactions.

12. (a) From the following information, prepare trading account for the year ending 31st December, 2023 :

Particulars	Rs.
Opening stock	50,000
Cost of goods manufactured	12,000
Cash purchases	60,000
Cash sales	85,000
Purchases returns	2,000
Carriage inwards	4,000
Freight outwards	3,000
Coal and fuel	2,500
Dock charges on purchases	4,000
Import duty on purchases	3,500
Wages	11,000
Sales returns	3,000
Credit purchases	35,000
Credit sales	60,000
Other direct expenses	7,000

Or

(b) Abstracts from the trial balance as on 31st March, 2023 :

Particulars	Debit Rs.
Sundry debtors	52,000
Bad debts	1,000

Adjustments :

(i) Additional bad debts Rs. 2,000

(ii) Create 5% provision for bad and doubtful debts

You are required to pass necessary adjusting entries and show how these items will appear in final accounts.

13. (a) On 1.1.2017 a firm purchased a machine at a cost of Rs. 1,00,000. Its life was estimated to be 10 years with a scrap value of Rs. 10,000. Compute the amount of depreciation to be charged at the end of each year.

Or

(b) Find out the rate of depreciation under straight line method from the following details :

Original cost of the asset = Rs. 10,000

Estimated life of the asset = 10 years

Estimated scrap value at the end = Rs. 2,000.

14. (a) State the methods for displaying trial balance.

Or

(b) Describe the concept Master configuration.

15. (a) Write a short note on Tally vault.

Or

(b) Explain different data formats in Tally.

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

Answer any **three** questions.

16. Valluvar is a sole trader dealing in textiles from the following transactions, pass journal entries for the month of March, 2024 :

March		Rs.
1	Commenced business with cash	90,000
	With goods	60,000
2	Purchased 20 readymade shirts from X and Co. on credit	10,000
3	Cash deposited into bank through Cash Deposit Machine	30,000
4	Purchased 10 readymade sarees from Y and Co. by cash	6,000
5	Paid X and Co. through NEFT	
6	Sold 5 sarees to A and Co. on credit	4,000
7	A and Co. deposited the amount due in Cash Deposit Machine	
8	Purchased 20 sarees from Z and Co. and paid through debit card	12,000
9	Stationery purchased for and paid through net banking	6,000
10	Bank charges levied	200

17. From the trial balance of Sumathi and the adjustments prepare the trading and profit and loss account for the year ended 31st March, 2016, and a balance sheet as on that date.

Particulars	Debit Rs.	Credit Rs.
Stock on April 1, 2015	900	
Purchases	2,000	
Sales		4,000
10% Loan		2,000
Carriage on purchases	200	
Rent from tenant		250
Interest on loan	100	
Machinery	400	
Postage	100	
Salary	650	
Commission received		200
Cash in hand	75	
Furniture	4,000	
Capital		1,975
	8,425	8,425

Adjustments :

(a) Six months interest on loan is outstanding.

(b) Two months rent is due from tenant, the monthly rent being Rs. 25

(c) Salary for the month of March 2016, Rs. 75 is unpaid.

(d) Stock in hand on March 31, 2016 was valued at Rs. 1,030.

18. Raj & Co purchased a machine on 1st January 2014 for Rs. 90,000. On 1st July 2014, they purchased another machine for Rs. 60,000. On 1st January 2015, they sold the machine purchased on 1st January 2014 for Rs. 40,000. It was decided that the machine be depreciated at 10% per annum on diminishing balance method. Accounts are closed on 31st December every year. Show the machinery account for the years 2014 and 2015.

19. Identify the appropriate accounting groups used for creating the following ledgers :

(a) Stock a/c

(b) Drawing a/c

(c) Wages a/c

(d) Selling expenses a/c

(e) Discount received a/c

(f) Return inwards a/c

(g) Discount allowed

(h) Return outwards a/c

(i) Plant and machinery a/c

(j) Mortgage of Building a/c

(k) Purchase a/c

(l) Shares in TCS a/c.

(m) Sales a/c

(n) Advances to supplies.

20. Explain various types of inventory with appropriate examples.

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S–0749

Sub. Code
23VSD5E1

B.Voc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Software Development

Elective – SOFTWARE ENGINEERING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Software Engineering.

2. Write any two limitations of the Classical Waterfall Model.

3. What are the main responsibilities of a Software Project Manager?

4. Differentiate between empirical estimation and heuristic estimation.

5. Define cohesion and coupling.

6. What is a Data Flow Diagram (DFD)?

7. Define white-box testing.

8. What is software reliability?

9. What is meant by CASE tools?

10. Define software reuse.

Part B

$(5 \times 5 = 25)$

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

11. (a) Explain Spiral Model with a neat diagram.

Or

(b) Write short notes on Iterative Waterfall Model.

12. (a) Discuss the importance of risk management in software projects.

Or

(b) Explain the role of Software Requirement Specification (SRS).

13. (a) Explain the characteristics of a good user interface.

Or

(b) Write short notes on UML Activity Diagrams.

14. (a) Differentiate between black-box and white-box testing.

Or

(b) Explain the importance of software documentation.

15. (a) Describe the characteristics of software maintenance.

Or

(b) What are the essential characteristics of CASE tools?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the prototyping model with suitable advantages and disadvantages.

17. Discuss COCOMO model in detail with an example.

18. Explain function-oriented software design using DFDs and structured design principles.

19. Describe various levels of software testing in detail with suitable examples.

20. Explain software reverse engineering and estimation of maintenance cost.

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S–0750

Sub. Code
23VSD5E2

B.Voc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Software Development

Elective – CLOUD COMPUTING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all the** questions.

1. Define cloud computing.

2. List any two challenges in cloud computing.

3. Differentiate between parallel and distributed computing.

4. Write any two elements of distributed computing.

5. Mention two characteristics of a virtualized environment.

6. Give two advantages of virtualization in cloud computing.

7. What is Infrastructure as a Service (IaaS)?

8. Write two types of cloud deployment models.

9. List two compute services provided by Amazon Web Services.

10. Write any two features of Google App Engine.

Part B (5 × 5 = 25)

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

11. (a) Explain the historical developments of cloud computing.

Or

(b) Describe the benefits and challenges of cloud computing.

12. (a) Write short notes on the eras of computing.

Or

(b) Explain the technologies used for distributed computing.

13. (a) Explain the taxonomy of virtualization techniques.

Or

(b) Discuss the pros and cons of virtualization.

14. (a) Describe the architecture of cloud computing.

Or

(b) Write short notes on SaaS, PaaS, and IaaS.

15. (a) Write short notes on Microsoft Azure core concepts.

Or

(b) Explain the architecture and life cycle of Google App Engine.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss the vision, definition, and characteristics of cloud computing with a neat diagram of the cloud computing reference model.

17. Explain in detail parallel vs. distributed computing with examples.

18. Discuss virtualization in detail. How is virtualization related to cloud computing?

19. Explain cloud computing architecture with reference to different service models and deployment models.

20. Compare Amazon Web Services, Google App Engine, and Microsoft Azure in terms of services, cost model, and observations.

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S–0751

Sub. Code
23VSD5C1

B.Voc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Software Development

JAVA PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List any four features of Java.

2. Define Java tokens and give two examples.

3. Define inheritance in Java and give an example.

4. What is visibility control in Java? List the access specifiers.

5. Define an event in Java AWT.

6. What is a listener in Java? Give an example.

7. Describe the life cycle of a thread in Java.

8. What is thread synchronization in Java?

9. What is JDBC-ODBC connectivity?

10. What is the role of the FileInputStream class in Java?

Part B (5 × 5 = 25)

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

11. (a) Explain the concept of decision-making and branching in Java with an example.

Or

(b) What are looping constructs in Java? Provide an example of a for loop and a while loop.

12. (a) What are abstract methods and abstract classes? Provide an example.

Or

(b) Explain visibility control in Java. Discuss different access specifiers with examples

13. (a) What is the Applet class? Explain its key methods with their purpose

Or

(b) Write a simple Java applet to display "Hello, World!' on the screen

14. (a) Describe the thread life cycle in Java with a diagram (explain in text)

Or

(b) What is thread synchronization? Explain with an example of the synchronized keyword

15. (a) What are Reader and Writer classes? Provide an example of reading a text file

Or

(b) Describe Data Output Stream and Data Input Stream classes with an example.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the key benefits of Object-Oriented Programming (OOP) and how Java implements these concepts. Provide examples to illustrate encapsulation, inheritance, and polymorphism in Java.

17. Discuss visibility control in Java (public, private, protected, default). Explain how arrays and strings are handled in Java with examples.

18. Discuss event handling in Java's Abstract Windowing Toolkit (AWT). Explain the role of listeners and event handling methods with an example of a simple event-driven applet.

19. Explain the exception handling mechanism in Java. Discuss the role of try, catch, throw, throws, and finally with examples. How can custom exceptions be created?

20. Describe JDBC-ODBC connectivity in Java. Explain the steps to establish a database connection and perform basic database operations (insert, update, delete) with an example.

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S–0752

Sub. Code
23VSD5G1

B.Voc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Software Development

PYTHON PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List any two features of Python programming.
2. What are Python identifiers? Give examples.
3. Define recursion in Python with an example.
4. What is the difference between type conversion and type coercion?
5. Write the syntax for tuple assignment in Python.
6. Mention any two built-in tuple functions with their purpose.
7. How can you update values in a dictionary?
8. Write two differences between list and dictionary in Python.
9. Define polymorphism in Python.
10. What is data hiding?

Part B

$(5 \times 5 = 25)$

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

11. (a) Explain Boolean expressions with suitable examples.

Or

(b) Describe the use of if-elif-else statement with a sample program.

12. (a) Write a Python program to demonstrate a user-defined function.

Or

(b) Explain string slicing with an example.

13. (a) Write a Python program to create and access elements of a tuple.

Or

(b) Describe list operators with suitable examples.

14. (a) Write a short note on file handling in Python.

Or

(b) Explain exception handling with try-except block.

15. (a) What is multiple inheritance? Write a Python program to illustrate it.

Or

(b) Explain method overriding in Python OOP.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain different standard data types in Python with examples.

17. Discuss different types of Python functions with suitable examples.

18. What are lists in Python? Explain list methods with examples.

19. Describe dictionary operations and built-in methods with examples.

20. Explain the concepts of classes, objects, and inheritance in Python with examples.

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