(6 pages)

Reg. No. : ....

Code No. : 30769 E   **Sub. Code : EMCS 11/ FCCS 11**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2024.

First Semester

Computer Science — Core

PYTHON PROGRAMMING

(For those who joined in July 2023 onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The extension of the Python file is
    (a) .python
    (b) .pl
    (c) .py
    (d) .p

2. The ———— is not a complex number.
    (a) A = 1 + 2j
    (b) B = complex (1, 2)
    (c) C = 2 + 2i
    (d) C = 2 + 2j

3. How many times will a loop with a header for count in range (5) execute statements in its body?
    (a) 5 times
    (b) 4 times
    (c) 6 times
    (d) 3 times

4. The value of i in the following statement is

    for i in range(100):

    print(i)
    (a) 101
    (b) 99
    (c) 100
    (d) 0

5. A variable defined outside a function is referred to as ————
    (a) Local variable
    (b) Only variable
    (c) Global variable
    (d) Variable

6. The step argument in range( ) function
    (a) indicates the beginning of the sequence
    (b) indicate the end of the sequence
    (c) indicates the difference between every two consecutive numbers in the sequence
    (d) generates numbers up to a specified value

7. A ———— is an ordered sequence of element of different data types, such as integer, float, string or list.

   (a) Tuple   (b) Dictionaries

   (c) List   (d) Set

8. Python allows us to join tuples using ———— operator.

   (a) Assignment   (b) Concatenation

   (c) Repetition   (d) Comparison

9. To open a file c:\scores.txt for reading, we use ————

   (a) infile = open("c:\scores.txt", "r")

   (b) infile = open("c:\\scores.txt", "r")

   (c) infile = open(file = "c:\scores.txt", "r")

   (d) infile = open(file = "c:\\scores.txt", "r")

10. To read two characters from a file object infile, we use ————

   (a) infile.read(2)   (b) infile.read( )

   (c) infile.readline( )   (d) infile.readlines( )

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Examine in detail about various output variables in python with examples.

   Or

   (b) Write a python program to convert days into months and days.

12. (a) Discuss in detail about if elif else statement in python syntax with example.

   Or

   (b) Write short notes on break and continue statement in Python syntax with example.

13. (a) Enumerate in detail about creating a function, calling a function and function as arguments with examples.

   Or

   (b) Elucidate in detail about recursive function syntax with example.

14. (a) Illustrate in detail about the following python list with example.

   (i) Creating a list

   (ii) Access values in a List.

   Or

(b) Illuminate in brief about the following python dictionaries with example.

(i) Creating a dictionary

(ii) Accessing a dictionary.

15. (a) Analyze in brief about list and define the four different methods for opening a file.

Or

(b) Clear up in detail about to open a file on the server with example.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 600 words.

16. (a) Paraphrase in detail about various operators used in python with example.

Or

(b) Translate in brief about different data types used in python with example.

17. (a) Summarize in detail about nested if statement in python syntax with example.

Or

(b) Characterize in brief about for and while loop statement in python syntax with example.

18. (a) Illuminate in detail about the any six mathematical function syntax with example.

Or

(b) Paraphrase in detail about any six string function syntax with example.

19. (a) Point out in detail about the following python list syntax with example.

(i) Updating values in lists

(ii) Nested list

(iii) Any three basic list operations.

Or

(b) Clear up in brief about the following python tuples syntax with example.

(i) Creating tuples

(ii) Accessing tuples

(iii) Updating and deleting elements in a tuple

(iv) Nested tuples.

20. (a) Elucidate in detail about opening and closing files in python with example.

Or

(b) Enumerate in brief about the following with example.

(i) Read only a parts of a file with example

(ii) Read a line in file with example.

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Code No. : 30944 E   Sub. Code : FECS 11

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2024.

First Semester

Computer Science

Elective — DIGITAL LOGIC FUNDAMENTALS

(For those who joined in July 2024 onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following is Natural number?
   (a) 3.5   (b) 7
   (c) 0   (d) –2

2. Integer numbers set is denoted by which letter?
   (a) N   (b) W
   (c) Q   (d) Z

3. Which of the following combinations of logic gates can decode binary 1101?
   (a) One 4-input AND gate
   (b) One 4-input AND gate, one inverter
   (c) One 4-input AND gate, one OR gate
   (d) One 4-input NAND gate, one inverter

4. In a combinational circuit, the output at any time depends only on the ——————— at that time.
   (a) Voltage   (b) Intermediate values
   (c) Input values   (d) Clock pulses

5. In a sequential circuit, the output at any time depends only on the input values at that time.
   (a) Past output values
   (b) Intermediate values
   (c) Both past output and present input
   (d) Present input values

6. All logic operations can be obtained by means of ——————.
   (a) AND and NAND operations
   (b) OR and NOR operations
   (c) OR and NOT operations
   (d) NAND and NOR operations

7. The truth table for an S-R flip-flop has how many VALID entries?

(a) 1
(b) 2
(c) 3
(d) 4

8. When both inputs of a J-K flip-flop cycle, the output will —————.

(a) Be invalid
(b) Change
(c) Not change
(d) Toggle

9. A shift register that will accept a parallel input or a bidirectional serial load and internal shift features is called as?

(a) Tristate
(b) End around
(c) Universal
(d) Conversion

10. How can parallel data be taken out of a shift register simultaneously?

(a) Use the Q output of the first FF
(b) Use the Q output of the last FF
(c) Tie all of the Q outputs together
(d) Use the Q output of each FF

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Convert the following:

Decimal Number 4097.188 into Binary Number.

Or

(b) Describe in brief The ASCII Code with example.

12. (a) Explain in detail about Duality Theorem with example.

Or

(b) Show the Logic Circuit for this Boolean Expression $Y(A\bar{B})(AB)$.

13. (a) Enumerate in detail about 8 to 1 Multiplexers with Logic Circuit and Truth Table.

Or

(b) Summarize in detail about BCD-TO-DECIMAL Decoder with neat diagram.

14. (a) Illustrate in detail about JK Master-Slave Flip Flops with Logic Diagram and Truth Table.

Or

(b) Illuminate in brief about Edge-triggered D Flip Flops with Logic Diagram and Truth Table.

15. (a) Relate in brief about Universal Shift Register with Logic Diagram and Truth Table.

Or

(b) Plan in detail about Serial In – Parallel Out with Logic Diagram and Truth Table.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 600 words.

16. (a) Elucidate in brief about The OR and AND Gate with its Logic Diagram and Truth table.

Or

(b) Convert the following

   (i) Decimal Number $(193.3)_{10}$ to an Octal Number and Binary

   (ii) Octal Number $(7765)_8$ to Decimal Number

   (iii) Hexadecimal Number $(5C8)_{16}$ to an Binary

   (iv) Octal Number $(1723)_8$ to Binary Number.

17. (a) Obtain the Canonical sum of product form of the function $Y(A, B, C) = A + BC$.

Or

(b) Simplify the following expression using the Karnaugh Map for the 4 variables A, B, C and D $Y = m_1 + m_3 + m_5 + m_7 + m_8 + m_9 + m_{12} + m_{13}$.

18. (a) Paraphrase in brief about 1-OF-10 Decoder with Logic Circuit and Truth-Table.

Or

(b) Infer in detail about 2's Compliment Representation with example.

19. (a) Clear up in brief about Edge-triggered RS Flip Flops with Logic Diagram and Truth Table.

Or

(b) Point out in detail about RS Flip Flop with Logic Diagram and Truth Table.

20. (a) Analyze in brief about Serial In – Serial Out with Logic Diagram and Truth Table.

Or

(b) Illustrate in detail about Parallel In – Parallel Out with Logic Diagram and Truth Table.

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Reg. No. : ....

Code No. : 30945 E   **Sub. Code : FFCS 11**

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2024.

First Semester

Computer Science

Foundation Course – PROBLEM SOLVING
TECHNIQUES

(For those who joined in July 2024 onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following is the brain of the computer?

   (a) Central Processing Unit

   (b) Memory

   (c) Arithmetic and Logic unit

   (d) Control unit

2. Which of the following is not a characteristic of a computer?

   (a) Versatility   (b) Accuracy

   (c) Diligence   (d) I.Q.

3. A program that can execute high-level language programs.

   (a) Compiler   (b) Interpreter

   (c) Sensor   (d) Circuitry

4. Source program is compiled to an intermediate form called —————.

   (a) Byte code   (b) Smart code

   (c) Executable code   (d) Machine code

5. A program should be —————.

   (a) Secure   (b) Sequential

   (c) Ordered   (d) Simple

6. Which of the following is a loop statement?

   (a) IF   (b) ELSE

   (c) WHILE   (d) DO

7. ————— is used to show hierarchy in a pseudo code.

   (a) Indentation   (b) Curly Braces

   (c) Round Brackets   (d) Semicolon

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8. The statement that tells the computer to get a value from an input device and store it in a memory location.

   (a) read
   (b) write
   (c) READ
   (d) WRITE

9. The requirement for not repeating the instructions is referred to as the —————.

   (a) Loop exit condition
   (b) Looping condition
   (c) Conditional statement
   (d) Iterative statement

10. In a ————— loop the condition is evaluated before the instructions within the loop are processed.

    (a) Posttest
    (b) Pretest
    (c) Conditional loop
    (d) Unconditional loop

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Analyze in detail about History of Computer with example.

    Or

    (b) Compare and Contrast System Software and Application Software.

12. (a) Explain in detail about various Data Types with example.

    Or

    (b) Outline in brief about Input and Processing of Data with example.

13. (a) Write a Flow Chart to Prepare Student Mark List.

    Or

    (b) Summarize in detail about Benefits and Drawbacks of Algorithm with example.

14. (a) Illustrate in detail about a Pseudo code with example.

    Or

    (b) Illuminate in brief about Selecting from Several Alternatives with example.

15. (a) Relate in brief about One Dimensional Array with example.

    Or

    (b) Plan in detail about Two Dimensional Array with Example.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Elucidate in brief about various Input Devices with neat diagram.

Or

(b) Discuss in detail about the following

(i) Mini Computer

(ii) Super Computer.

17. (a) Examine in brief about Hierarchy of Operations with example.

Or

(b) Point Out in detail about Different Phases in Program Development with example.

18. (a) Write a Flowchart to find Factorial of n numbers.

Or

(b) Infer in detail about Advantages and Limitations of Flowchart with example.

19. (a) Clear up in brief about Application of Selection Structures with example.

Or

(b) Point out in detail about Relational and Logical Operators with example.

20. (a) Analyze in brief about String as Array of Characters with example.

Or

(b) Illustrate in detail about Nested Loops with example.

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