24U165

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Name : ....

Reg. No : ....

FIRST SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2024

(FYUGP)

CC24U CSC1 MN101 - EXPLORING COMPUTER BASICS AND COMPUTATIONAL THINKING

(B.Sc. Computer Science - Minor Course)

(2024 Admission - Regular)

Time: 2.0 Hours

Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)

Answer *all* questions. Each question carries 3 marks.

1. Explain the key characteristics of supercomputers. [Level:2] [CO1]

2. Discuss the characteristics that define computers as unique tools. [Level:2] [CO1]

3. Clarify the concept of memory hierarchy in computer systems., and why is it important for performance optimization? [Level:2] [CO2]

4. Describe the function of the network interface on a motherboard. [Level:2] [CO2]

5. Explain the function of the Control Unit (CU) within the CPU. How does it coordinate the activities of different parts of the computer? [Level:2] [CO2]

6. Define the role of a plotter, and how does it differ from standard printers? [Level:1] [CO3]

7. Discuss about video digitizer, and how is it used to capture video input for a computer? [Level:2] [CO3]

8. Explain the concept of proprietary software. [Level:2] [CO3]

9. Provide the term algorithm and explain its purpose in problem-solving. [Level:3] [CO4]

10. Provide the term flowchart. [Level:3] [CO4]

(Ceiling: 24 Marks)

Part B (Paragraph questions/Problem)

Answer *all* questions. Each question carries 6 marks.

11. Illustrate the comparison of the binary and decimal number systems in terms of their structure and use cases. [Level:2] [CO1]

12. Explain Binary-Coded Decimal (BCD) code. Discuss how does it represent decimal numbers with an example. [Level:2] [CO1]

13. Discuss about volatile memory, and how does it differ from non-volatile memory? Provide examples of each and discuss their respective uses in computing. [Level:2] [CO2]

14. Explain the purpose of the storage unit in a computer system. Differentiate RAM and ROM [Level:2] [CO2]

15. Explain how real-time operating systems handle task scheduling? [Level:2] [CO3]

16. Explain distributed operating systems. How do they differ from traditional operating systems [Level:2] [CO3]

17. Demonstrate a pseudocode algorithm for calculating the factorial of a number. Provide a detailed explanation of the pseudocode structure and why it is beneficial for programming. [Level:3] [CO4]

18. Estimate a real-world scenario where a large dataset needs to be searched, explain how you would apply the key components of problem-solving to design an efficient search algorithm. [Level:3] [CO4]

(Ceiling: 36 Marks)

Part C (Essay questions)

Answer any *one* question. The question carries 10 marks.

19. Define the characteristics of each generation computers. How did the invention of microprocessors revolutionize computing in terms of cost, size, and performance? [Level:2] [CO1]

20. Draw a flowchart for a simple banking transaction process, such as withdrawing money from an ATM. Include decision points and demonstrate how different outcomes are represented in your flowchart. [Level:3] [CO4]

(1 × 10 = 10 Marks)

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