Karnataka Board

# Mid-Term Question Paper

## 2024-25

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# II PUC MID-TERM EXAMINATION, OCT./NOV. - 2024

## COMPUTER SCIENCE (41)

**Time : 3 Hours** **Max Marks : 70**

### PART-A

**I** **Answer ALL the questions. Each question carries ONE mark. 1x20=20**
**Select the correct answer from the choices given:**
**(Repeated answers will not be considered)**

1. SMPS stands for
   a) Switch Mode Power Supply b) Switch Mode Power supply
   c) Switch Mode Port Supply d) Switch Made Port Supply

2. The main circuit board inside the computer is
   a) Mother Board b) Microprocessor c) Port d) Bus

3. The motherboard's geometry, dimensions, arrangement and electrical requirements is
   a) Chipset b) Form factor c) Processor Socket d) Port

4. Minterm notation of $\overline{X}YZ$ is
   a) $m_4$ b) M4 c) m3 d) M3

5. The other name for Boolean Algebra is
   a) Relational Algebra b) Switching Algebra c) Logical Algebra d) Mathematical Algebra

6. Idempotence law states that
   a) $X + X = X$ b) $X \cdot X = X$ c) Both a) & b) d) None of the above

7. **Assertion (A) :** Pre-Requisite of Binary Search is Sorted array
   **Reason (R) :** Binary Search is one of the simplest searching techniques
   a) A is correct, R is not correct b) A is not correct, and R is correct
   c) A is correct, R is correct d) A is not correct, and R is not correct

8. The topmost node in the tree is called
   a) Leaf Node b) Root Note c) Internal Node d) All of the above

9. The process of combining data and its related functions is called
   a) Data Encapsulation b) Data Hiding c) Data Abstraction d) Inheritance

10. The capability of a class to acquires the properties of another class
    a) Data Encapsulation b) Data Hiding c) Polymorphism d) Inheritance

11. _____ is an instance of a class.
    a) Class b) Object c) Function d) Constructor

12. The default access specifier of a class is
    a) Private b) Public c) Protected d) Both a) and (b)

13. Function Overloading is also known as
    a) Run time polymorphism b) Compile time polymorphism
    c) Compile time encapsulation d) Run time encapsulation

14. The constructor that does not accept any arguments is called
    a) Default Constructor b) Parameterized Constructor
    c) Copy Constructor d) All of the above

15. The symbol used to represent destructor is
    a) Dot (.) b) Tilde (~) c) Address of (&) d) Pointer(*)

(P.T.O)

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**II** **Fill in the blanks choosing the appropriate word/words from those given in brackets. (Repeated answers will not be considered)**
**(Searching, Stack, Queue, Push, Pop, primitive)**

16. The data structure directly operated upon by machine level instructions is _____.
17. The process of finding the location of an element in an array is called _____.
18. _____ is an example for Non-Primitive Data Structure.
19. _____ follows FIFO principle.
20. _____ is a process of adding a new item in to the top of the stack.

**PART-B**

**III** **Answer any FOUR questions. Each question carries TWO marks.** **2x4=8**

21. Mention the two types of UPS.
22. Define a) Tautology b) Fallacy.
23. What is Non-Linear data structure ? Give an example.
24. What is meant by derived gate ? Give an example.
25. Explain with syntax and example object creation.
26. Give two reasons when inline function cannot work.
27. What is copy constructor ? Give an example.

**PART-C**

**IV** **Answer any FOUR questions. Each question carries THREE marks.** **3x4=12**

28. State and prove absorption law.
29. Simplify : $X + (Y + Z) = (X + Y) + Z$
30. Explain with logic symbol and truth table of NAND gate.
31. Write an algorithm for PUSH operation on stack.
32. Give any three applications of OOPs.
33. Briefly explain different types of access specifiers.
34. Write any three characteristics of friend a function.

**PART-D**

**V** **Answer any FOUR questions. Each question carries FIVE marks.** **5x4=20**

35. Explain any five components of Motherboard.
36. State and prove Associative law.
37. What is gate ? Explain Basic gates.
38. What is Queue data structure ? Explain different types of Queues.
39. Write class definition with syntax and example.
40. Illustrate with programming example function overloading.
41. List any of the five rules for creating a constructor.

**PART-E**

**VI** **Answer any TWO questions. Each question carries FIVE marks.** **5x2=10**

42. Give Boolean function $f(A, B, C, D) = \sum(0, 2, 4, 5, 6, 8, 10, 11, 12, 14, 15)$. Simplify using K-map.
43. Write an algorithm for searching an element in an array using Binary Search.
44. Explain Parameterized constructor with a programming example.

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