

M.C.A. DEGREE EXAMINATIONS: JANUARY 2009

First Semester

P07CA102: PROBLEM SOLVING AND PROGRAMMING

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (20 x 1 =20 Marks)

1. Implications have the general form
(a) $P \supset Q$ (b) $P > 0$ (c) $P < 0$ (d) $p \neq 0$
2. Debugging tool is to have a Boolean variable called
(a) True (b) bug (c) False (d) debug
3. The set of instructions is called _____
(a) Algorithm (b) Input (c) Program (d) Output
4. The resources most relevant in relation to efficiency are
(a) Central Processor time and internal memory
(b) Millions of instructions per second
(c) I / O seek time
(d) Execution time and external memory
5. The application of exchanging the values of two variables is
(a) Mathematical and statistical computations
(b) Searching algorithm
(c) All forms of counting
(d) Sorting algorithm
6. To generate consecutive terms of the sine series we can use
(a) current i^{th} term = $(x^2 / i (i - 1)) * \text{previous term}$
(b) current i^{th} term = $(x^2 / i (i + 1)) * \text{previous term}$
(c) current i^{th} term = $(x / i (i - 1)) * \text{previous term}$
(d) current i^{th} term = $(1 / i (i - 1)) * \text{previous term}$
7. Which of the following function is used to find the remainder
(a) rem (b) remainder (c) div (d) mod
8. Convert $(275)_8$ to its decimal form
(a) 891 (b) 189 (c) 10 (d) 8
9. String constant always ends with the special character
(a) '\t' (b) '\a' (c) '\0' (d) '\r'
10. One's complement operator is represented by the symbol
(a) + (b) comp (c) ~ (d) %

11. $(3x^2 + 2x + 5)$

Choose the correct expression of the above algebraic expression

- (a) $(3x*x + 2x + 5)$
- (b) $(3*x*x + 2*x + 5)$
- (c) $(3*x^2 + 2x + 5)$
- (d) $(3*x^2 + 2*x + 5)$

12. Case is followed by an _____

- (a) String
- (b) Keyword
- (c) Expression
- (d) Integer (or) a character constant

13. A collection of related data types that share a common name is called as

- (a) Pointer
- (b) Data types
- (c) Integer
- (d) Array

14. Return value is the outcome of _____

- (a) Array
- (b) Structure
- (c) Union
- (d) Function

15. Structure declaration always starts with _____ keyword

- (a) Structure
- (b) Struct_type
- (c) struct
- (d) tag

16. By using _____ we can create new data types

- (a) union
- (b) struct
- (c) typedef
- (d) integer

17. The value of $*(&i)$ is the same as printing the value of _____

- (a) i
- (b) Address of i
- (c) &
- (d) *

18. To open a file we need a function

- (a) `getc()`
- (b) `fclose()`
- (c) `putc()`
- (d) `fopen()`

19. _____ function is useful for allocating multiple blocks of memory

- (a) `malloc()`
- (b) `calloc()`
- (c) `sizeof()`
- (d) `free()`

20. The dynamic implementation of list using pointers is known as _____

- (a) List
- (b) Queue
- (c) Linked list
- (d) node

PART B (5 x 16 = 80 Marks)

21. (a) Describe in detail about Problem-Solving Aspect?

(OR)

21. (b) i) Write short notes on Termination of loops?

(8)

ii) How to debug a program?

(8)

22. (a) Write an algorithm to reverse the digits of an integer

(OR)

22. (b) Explain

i) Base conversion with example (8)

ii) Factorial Computation with example (8)

23. (a) Write short notes on

Constants, Variables and Data types (8)

ii) Write a program to use relational operators and display their return value (8)

(OR)

23. (b) Explain the following loops for; while; do-while ^

24. (a) Write short notes on

i) Call by value (8)

ii) Call by reference (8)

(OR)

24. (b) Define structure within structure. Write a program to read and display car number, starting time and reaching time. Use structure within structure.

25. (a) Describe in detail about Dynamic memory allocation

(OR)

25. (b) i) Write a program to write data to text file and read it (8)

ii) Write a program to perform different arithmetic operations using pointers (8)
