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PG-EE-2013

SUBJECT : M.C.A.-LE

A

Sr. No. **10045**

Time : 1¼ Hours

Max. Marks : 100

Total Questions : 100

Roll No. (in figures) _____ (in words) _____

Name _____ Father's Name _____

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(Signature of the Candidate)

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SEAL

1. A Pseudo code is a
(1) Program (2) Algorithm (3) Can't say (4) None
2. SCSI is :
(1) Small Computer System Interface
(2) Small Computer System Interchange
(3) Simple Computer Secondary Information
(4) Simple Computer Secondary Interface
3. BIOS stands for :
(1) Basic Input Output System (2) Begin Input Output System
(3) Basic Instruction Output System (4) Base Instruction Output System
4. What type of computer chips are said to be volatile ?
(1) RAM chips (2) ROM chips
(3) All of the above (4) None of the above
5. Which of the following memories has the shortest access times ?
(1) Cache memory (2) Magnetic core memory
(3) RAM (4) PROM
6. According to Niklaus Wirth, a computer scientist, program consist of :
(1) Algorithm and data (2) Algorithm only
(3) Data only (4) None of the above
7. Graphical representation of control flow in a program can be depicted through :
(1) Gantt chart (2) Entity-relationship diagram
(3) Flow chart (4) None of the above
8. In flow chart, diamond box is used for :
(1) Decision/conditional checking (2) Data input/output
(3) Calculation and data manipulation (4) As connector
9. Which Loop is called as Entry Control Loop ?
(1) Do.. While (2) While....Do (3) Both (4) None
10. `strlwr ()` is used for :
(1) Converting string into Integer (2) Converting string into Lower Case
(3) Converting string into Upper Case (4) Converting string into Octal form

11. "%s" is used for specifying :
- (1) Signed Variable (2) Short Variable
(3) String (4) All of the above
12. free () is a :
- (1) Memory Allocation Function (2) Recursive Function
(3) Memory De-Allocation Function (4) None
13. Cgets () and Cputs () are defined in :
- (1) stdio,h (2) conio.h (3) math.h (4) All of the above
14. To get a character from unformatted I/O Data Files, we have to use :
- (1) scanf () (2) getche () (3) getchar () (4) getc ()
15. Write the Output for :
- ```
main ()
{
 int i = 5, j = 6 ;
 printf ("% d", 0 && (i = 10));
}
```
- (1) 0 (2) 1 (3) 10 (4) None
16. Write the output of :
- ```
main ()  
{  
    int n 1 = 4;  
    printf ("%d", size of (n1));  
}
```
- (1) 2 (2) 4
(3) 1 (4) 8
17. Which of the following operator can not be overloaded ?
- (1) Scope resolution operator (2) Arrow operator
(3) Equality operator (4) Assignment operator
18. How do we declare an interface class ?
- (1) By declaring the class as interface with keyword interface
(2) By making all the methods abstract using the keyword abstract in class
(3) By making all the methods pure virtual in class
(4) It is not possible to create interface classes in c++

19. What is the right way to declare a copy constructor of a class if the name of class is X ?
- (1) X (const X* arg) (2) X (const X & arg)
(3) X (X arg) (4) X (X* arg)
20. Which statement is most appropriate for C++ language ?
- (1) Type less language (2) Statically types language
(3) Dynamically typed language (4) Both 2 and 3
21. Among the logic families, the family which can be used at very high frequency greater than 100 MHz in a 4 bit synchronous counter is :
- (1) TTLAS (2) CMOS (3) ECL (4) TTLIS
22. An AND gate will function as OR if :
- (1) all the inputs to the gates are "1"
(2) all the inputs are '0'
(3) either of the inputs is "1"
(4) all the inputs and outputs are complemented
23. An OR gate has 6 inputs. The number of input words in its truth table are :
- (1) 6 (2) 32 (3) 64 (4) 128
24. NAND gates are preferred over others because these :
- (1) have lower fabrication area (2) can be used to make any gate
(3) consume least electronic power (4) provide maximum density in a chip
25. In case of OR gate, no matter what the number of inputs, a
- (1) 1 at any input causes the output to be at logic 1
(2) 1 at any input causes the output to be at logic 0
(3) 0 any input causes the output to be at logic 0
(4) 0 at any input causes the output to be at logic 1
26. The most common addressing techniques employed by a CPU is :
- (1) immediate (2) direct (3) indirect (4) all of the above
27. Pipeline implement :
- (1) fetch instruction and decode instruction
(2) fetch operand and calculate operand
(3) execute instruction
(4) all of the above

28. Which of the following code is used in present day computing was developed by IBM corporation ?
- (1) ASCII (2) Hollerith Code
(3) Baudot code (4) EBCDIC code

29. When a subroutine is called, the address of the instruction following the CALL instructions stored in/on the :
- (1) Stack pointer (2) Accumulator
(3) Program counter (4) Stack

30. A microprogram written as string of 0's and 1's is a :
- (1) Symbolic microinstruction (2) Binary microinstruction
(3) Symbolic microprogram (4) Binary microprogram

31. If a, b, c are different and :

$$\begin{vmatrix} 0 & x-a & x-b \\ x+a & 0 & x-c \\ x+b & x+c & 0 \end{vmatrix} = 0, \text{ then } x \text{ is equal to}$$

- (1) a (2) b (3) c (4) 0

32. If A is $\begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & \lambda \end{bmatrix}$ is a singular matrix then $\lambda =$

- (1) 3 (2) 4
(3) 2 (4) 5

33. If $A = \begin{bmatrix} 3 & -3 & 4 \\ 2 & -3 & 4 \\ 0 & -1 & 1 \end{bmatrix}$, then $A^{-1} =$

- (1) A (2) A^2 (3) A^3 (4) A^4

34. If $A_\alpha = \begin{bmatrix} \cos \alpha & \sin \alpha \\ -\sin \alpha & \cos \alpha \end{bmatrix}$, then $A_\alpha A_\beta$ is equal to :

- (1) $A_{\alpha+\beta}$ (2) $A_{\alpha\beta}$ (3) $A_{\alpha-\beta}$ (4) none of these

35. If A and B are symmetric matrices, then $AB - BA$ is a :

- (1) Symmetric matrix (2) Skew symmetric matrix
(3) Diagonal matrix (4) Null matrix

A

36. The inverse of a skew symmetric matrix of odd order is :
- (1) a symmetric matrix (2) a skew symmetric matrix
(3) diagonal matrix (4) does not exist
37. The value of λ for which the system of equations :
- $$\begin{aligned} 2x - y - 2z &= 2 \\ x - 2y + z &= -4 \\ x + y + \lambda z &= 4 \end{aligned}$$
- has no solution, is
- (1) -3 (2) 3 (3) 2 (4) -2
38. If $A = \begin{bmatrix} \alpha & 0 \\ 1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 \\ 5 & 1 \end{bmatrix}$, then the value of α for which $A^2 = B$, is :
- (1) 1 (2) -1 (3) 4 (4) no real values
39. If the value of the determinant $\begin{vmatrix} a & 1 & 1 \\ 1 & b & 1 \\ 1 & 1 & c \end{vmatrix}$ is positive, then :
- (1) $abc > 1$ (2) $abc > -8$ (3) $abc < -8$ (4) $abc > -2$
40. The value of $\begin{vmatrix} a & a^2 & -bc & 1 \\ b & b^2 & -ca & 1 \\ c & c^2 & -ab & 1 \end{vmatrix}$ is
- (1) 1 (2) -1 (3) 0 (4) -abc
41. is used to build 'intuitive' queries.
- (1) SQL (2) Xbase (3) QBE (4) XML
42. To print information from a table, the..... tool is the best choice :
- (1) form (2) report (3) query (4) macro
43. To store your picture in a database requires a (n).....field.
- (1) BLOB (2) text (3) image (4) logical
44. The..... is used to access one record at a time :
- (1) query (2) filter (3) form (4) report

45. A transparent DBMS :
- (1) Can not hide sensitive information from users
 - (2) Keep its logical structure hidden from users
 - (3) Keeps its physical structure hidden from users
 - (4) Both (2) and (3)
46. An unnormalized relation contains values :
- (1) Atomic
 - (2) Non-Atomic
 - (3) Classified
 - (4) None of these
47. A relation scheme is said to be in..... form if the values in the domain of each attribute of the relation are atomic .
- (1) Unnormalized
 - (2) First Normal
 - (3) Boyce CODD
 - (4) None of these
48. A second normal form does not permit.....dependency between a non prime attribute and the relation key.
- (1) Partial
 - (2) Multi
 - (3) Functional
 - (4) Valued
49. A relation scheme is in.....if it is in the 1NF and if all non prime attributes are fully functionally dependent on the relation key .
- (1) First Normal Form
 - (2) Second Normal Form
 - (3) Boyce CODD Normal Form
 - (4) Fourth Normal Form
50. In a Third Normal Form relation, every.....attribute is non-transitively and fully dependent on the every candidate key.
- (1) Prime
 - (2) Non prime
 - (3) Unique
 - (4) None of these
51. The collection of communication lines and routers is called :
- (1) LAN
 - (2) MAN
 - (3) WAN
 - (4) Communication Subnet
52. In the IEEE standards 802.5 standard is also called.....
- (1) Ethernet
 - (2) Token Bus
 - (3) Wireless Token Area Network
 - (4) Token Ring
53. have a single communication channel that is shared by all the users on the network.
- (1) Point-to-Point
 - (2) Broadcast network
 - (3) Protocol
 - (4) PAN

54. Error detection at the data link level is achieved by..... .
(1) Bit stuffing (2) Hamming codes
(3) Cyclic Redundancy codes (4) Equalization
55. Which of the following is an advantage to using fibre optics data transmission ?
(1) Resistance to data theft (2) Fast data transmission rate
(3) Low noise level (4) All of the above
56. Which of the following is required to communicate between two computers ?
(1) Communication software
(2) Protocol
(3) Communication hardware
(4) All of the above including access to transmission medium
57. Which of the following types of channels moves data relatively slowly ?
(1) Wide band channel (2) Voice band channel
(3) Narrow band channel (4) All of the above
58. A protocol is a set of rules governing a time sequence of events that must take place :
(1) between peers (2) between an interface
(3) between modems (4) across an interface
59. Which of the following transmission systems provide the highest data rate to in individual device ?
(1) Computer bus (2) Telephone lines
(3) Voice and mode (4) Lease lines
60. Communication circuits that transmit data in both directions but not at the same time are operating in :
(1) a simplex mode (2) a half duplex mode
(3) a full duplex mode (4) an asynchronous mode
61.page replacement algorithm suffers from Belady's anomaly.
(1) LRU (2) MRU
(3) FIFO (4) LIFO
62. is a high speed cache used to hold recently referenced page table entries a part of paged virtual memory.
(1) Translation lookaside buffer (2) Inverse page table
(3) Segmented page table (4) All of the above

63. does the job of allocating a process to the processor :
- (1) Long term scheduler
 - (2) Short term scheduler
 - (3) Medium term scheduler
 - (4) Dispatcher
64. In interactive environments such as time-sharing systems, the primary requirement is to provide reasonably good response time and in general, to share system resources equitably. In such situations, the scheduling algorithm that is most popularly applied is.....
- (1) Shortest Remaining Time Next (SRTN) Scheduling
 - (2) Priority Based Preemptive Scheduling
 - (3) Round Robin Scheduling
 - (4) None of the above
65. In the multi-programming environment, the main memory consisting of..... number of process.
- (1) Greater than 100
 - (2) Only one
 - (3) Greater than 50
 - (4) More than one
66. In a multithreaded environment.....
- (1) Each thread is allocated with new memory from main memory
 - (2) Main thread terminates after the termination of child threads
 - (3) Every process can have only one thread
 - (4) None of the above
67. Which of the following statement is not true ?
- (1) Multiprogramming implies multitasking
 - (2) Multi-user does not imply multiprocessing
 - (3) Multitasking does not imply multiprocessing
 - (4) Multithreading implies multi-user
68. In one of the deadlock prevention methods, impose a total ordering of all resource types, and require that each process requests resources in an increasing order of enumeration. This violates the..... condition of deadlock.
- (1) Mutual exclusion
 - (2) Hold and wait
 - (3) Circular wait
 - (4) No preemption
69. In the.....method of data transfer, the participation of the processor is eliminated during data transfer.
- (1) Buffering
 - (2) Caching
 - (3) Direct Memory Access
 - (4) Indirect Memory Access

70. A thread is aprocess.
- (1) Heavy weight
 - (2) Multiprocess
 - (3) Inter Thread
 - (4) Light weight
71. Which of the following is not viewed as a primary mover in improving the software process ?
- (1) Increased effectiveness
 - (2) Better product quality
 - (3) Improved Staff Satisfaction
 - (4) Tighter managerial control
72. Symptoms of the software crisis would include :
- (1) Software delivered behind schedule
 - (2) Software exceeding cost estimate
 - (3) Unreliable
 - (4) All of the above
73. Which of the following projects would be a good one for adopting the prototyping paradigm for software development ?
- (1) Accounting system
 - (2) Spreadsheet
 - (3) Automobile cruise control
 - (4) Algebra tutor
74. Views of quality software would not include :
- (1) Optimizing price and performance
 - (2) Minimizing the execution errors
 - (3) Conformance to specification
 - (4) Establishing valid requirements
75. Software configuration activities would not include :
- (1) Identify change
 - (2) Control change
 - (3) Ensure improper implementation of change
 - (4) Report change to interested parties
76. In planning a software project one would :
- (1) Find ways to produce results using limited resources
 - (2) Pad the schedule to accommodate errors
 - (3) Overestimate the budget
 - (4) Structure the team to prevent administrative interference
77. A systematic approach to software development, as epitomized by the various life-cycle models, is useful in :
- (1) Helping us understand the nature of the software product
 - (2) Convincing the customer that we know what we are doing
 - (3) Filling texts on software engineering
 - (4) Managing the various activities necessary to get the job done

78. A process view in software engineering would consider which of the following :
- (1) Product performance
 - (2) Staffing
 - (3) Functionality
 - (4) Reliability
79. Software measurement is useful to :
- (1) Indicate quality of the product
 - (2) Track progress
 - (3) Assess productivity
 - (4) All of the above
80. Which of the following is not a 'concern' during the management of a software project ?
- (1) Money
 - (2) Time
 - (3) Product quality
 - (4) Product quantity
81. What type of information should you avoid including on your website ?
- (1) Links to sites of interest
 - (2) Private personal information
 - (3) Work and academic experience
 - (4) Graphical
82. Which of the following web elements should you know about before building your website ?
- (1) the web audience
 - (2) the operating environment of your isp
 - (3) the operating system of your visitor
 - (4) each consideration should determine your web design choices
83. What is the language of the web ?
- (1) Basic
 - (2) C++
 - (3) MS Visual Basic
 - (4) HTML
84. What does an HTML tag do ?
- (1) it specifies formatting and layout instructions for your web page
 - (2) it hides programming instructions from view
 - (3) it determines the organizational structure of your website
 - (4) it connects your website to an operating environment
85. A web document is broken into sections. What are the tags called that create these sections ?
- (1) Structure tags
 - (2) html tags
 - (3) heading tags
 - (4) body tags

86. What should be the first and last pair of tags in your web document ?
(1) `<html></html>` and `<body></body>`
(2) `<start><end>` and `<body></body>`
(3) `<head><body>` and `<title></title>`
(4) `<title></title>` and `<body<>/body>`
87. When you use a heading tag in a document, what does the web browser assumes ?
(1) heading information is to appear in bold letters
(2) heading information is to appear on its own line
(3) heading information has a hyperlink
(4) heading information is shown as a size six
88. For every web document, you can add words that appear in the upper left bar area of your browser. What set of tags allows you to provide this information ?
(1) `<head></head>`
(2) `<head><head>`
(3) `<label><label>`
(4) `<title></title>`
89. If you wanted to create text that was a different color or font than other text in your web page, what type of tag would you use ?
(1) Layout
(2) Basic formatting
(3) Design
(4) Outline
90. When creating a web document, what format is used to express an image's height and width ?
(1) Centimeters (2) Pixels (3) Dots per inch (4) Inches
91. What is the worst-case time for heapsort to sort an array of n elements ?
(1) $O(\log n)$ (2) $O(n)$ (3) $O(n \log n)$ (4) $O(n^2)$
92. In AVL tree the balance factor of every node should be :
(1) 0 (2) 0 or 1 (3) -1, 0 or 1 (4) -1 or 1
93. The elements of linked list are stored in :
(1) Successive memory locations (2) Random memory locations
(3) Alternate memory locations (4) None of the above
94. Queue data structure is based on the principle of :
(1) Last come first serve (2) First come first serve
(3) Both (1) & (2) above (4) None of the above

95. Which of the following is a non-linear data structure ?
(1) Tree (2) Array
(3) Linked list (4) None of the above
96. To implement recursion, which of the following data structure is required ?
(1) Stack (2) Queue
(3) Tree (4) None of the above
97. Array passed as an argument to a function is interpreted as :
(1) Address of the array
(2) Values of the first elements of the array
(3) Address of the first element of the array
(4) Number of element of the array
98. Time taken for addition of element in queue is :
(1) $O(1)$ (2) $O(n)$
(3) $O(\log n)$ (4) None of these options
99. The memory address of the first element of an array is called :
(1) Floor address (2) Foundation address
(3) First address (4) Base address
100. The memory address of fifth element of an array can be calculated by the formula :
(1) $LOC(\text{Array}[5]) = \text{Base}(\text{Array}) + w(5 - \text{lower bound})$, where w is the number of words per memory cell for the array
(2) $LOC(\text{Array}[5]) = \text{Base}(\text{Array}[5]) + w(5 - \text{lower bound})$, where w is the number of words per memory cell for the array
(3) $LOC(\text{Array}[5]) = \text{Base}(\text{Array}[4]) + w(5 - \text{Upper bound})$, where w is the number of words per memory cell for the array
(4) None of the above