(DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)

PG-EE-2013

SUBJECT : M.C.A.-LE

B

Sr. No. 10034

Time : **1¼ Hours**   Max. Marks : **100**   Total Questions : **100**

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

Name _____ Father's Name_____

Mother's Name_____ Date of Examination _____

_____   _____
(Signature of the Candidate)   (Signature of the Invigilator)

SEAL

CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

1. *All questions are compulsory and carry equal marks.*

2. The candidates **must return** the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means/misbehaviour will be registered against him/her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.

3. In case there is any discrepancy in any question(s) in the Question Booklet, the same may be brought to the notice of the Controller of Examinations in writing **within two hours** after the test is over. No such complaint(s) will be entertained thereafter.

4. The candidate **must not** do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers **Must Not** be ticked in the question booklet.

5. *Use only black or blue ball point pen of good quality in the OMR Answer-Sheet.*

6. There will be no **negative** marking. Each correct answer will be awarded **one** full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.

7. *Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet, containing **100** questions (Sr. No. 1 to 100). Complaints, if any, regarding misprinting etc. will not be entertained **30** minutes after starting of the examination.*

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1. "%s" is used for specifying :
   (1) Signed Variable
   (2) Short Variable
   (3) String
   (4) All of the above

2. free ( ) is a :
   (1) Memory Allocation Function
   (2) Recursive Function
   (3) Memory De-Allocation Function
   (4) None

3. Cgets ( ) and Cputs ( ) are defined in :
   (1) stdio,h
   (2) conio.h
   (3) math.h
   (4) All of the above

4. To get a character from unformatted I/O Data Files, we have to use :
   (1) scanf ( )
   (2) getche ( )
   (3) getchar ( )
   (4) getc ( )

5. Write the Output for :
   ```
   main ( )
   {
       int i = 5, j = 6 ;
       printf ("% d", 0 && (i = 10));
   }
   ```
   (1) 0
   (2) 1
   (3) 10
   (4) None

6. Write the output of :
   ```
   main ( )
   {
       int n 1 = 4;
       printf ("%d", size of (n1));
   }
   ```
   (1) 2
   (2) 4
   (3) 1
   (4) 8

7. Which of the following operator can not be overloaded ?
   (1) Scope resolution operator
   (2) Arrow operator
   (3) Equality operator
   (4) Assignment operator

8. 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++

9. 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)

10. 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)

11. 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) $O (n^2)$

12. 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

13. 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

14. 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

15. Which of the following is a non-linear data structure ?
(1) Tree
(2) Array
(3) Linked list
(4) None of the above

16. To implement recursion, which of the following data structure is required ?
(1) Stack
(2) Queue
(3) Tree
(4) None of the above

17. 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

18. Time taken for addition of element in queue is :
(1) $O (1)$
(2) $O (n)$
(3) $O (\log n)$
(4) None of these options

19. The memory address of the first element of an array is called :

    (1) Floor address   (2) Foundation address

    (3) First address   (4) Base address

20. The memory address of fifth element of an array can be calculated by the formula :

    (1) LOC (Array [5]) = Base (Array) + w (5-lower bound), where w is the number of words per memory cell for the array

    (2) LOC (Array [5]) = Base (Array [5]) + w (5-lower bound), where w is the number of words per memory cell for the array

    (3) LOC (Array [5]) = Base (Array [4]) + w (5-Upper bound), where w is the number of words per memory cell for the array

    (4) None of the above

21. 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

22. Symptoms of the software crisis would include :

    (1) Software delivered behind schedule   (2) Software exceeding cost estimate

    (3) Unreliable   (4) All of the above

23. 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

24. 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

25. Software configuration activities would not include :

    (1) Identify change

    (2) Control change

    (3) Ensure improper implementation of change

    (4) Report change to interested parties

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26. 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

27. 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

28. A process view in software engineering would consider which of the following ?
    (1) Product performance   (2) Staffing
    (3) Functionality   (4) Reliability

29. Software measurement is useful to :
    (1) Indicate quality of the product   (2) Track progress
    (3) Assess productivity   (4) All of the above

30. 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

31. The collection of communication lines and routers is called :
    (1) LAN   (2) MAN
    (3) WAN   (4) Communication Subnet

32. In the IEEE standards 802.5 standard is also called............... .
    (1) Ethernet   (2) Token Bus
    (3) Wireless Token Area Network (4) Token Ring

33. .... 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

34. Error detection at the data link level is achieved by................. .
    (1) Bit stuffing   (2) Hamming codes
    (3) Cyclic Redundancy codes   (4) Equalization

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35. 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

36. 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

37. 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

38. 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

39. 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

40. 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

41. 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

42. 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

43. 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

44. 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

45. 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

46. 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

47. The value of λ for which the system of equations :

$2x - y - 2x = 2$
$x - 2y + z = -4$
$x + y + \lambda z = 4$

has no solution, is

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

48. 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

49. 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

50. 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) $-abc$

51. 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) TTLLS

52. 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

53. An OR gate has 6 inputs. The number of input words in its truth table are :

    (1) 6   (2) 32   (3) 64   (4) 128

54. 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

55. 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

56. The most common addressing techniques employed by a CPU is :

    (1) immediate   (2) direct

    (3) indirect   (4) all of the above

57. Pipeline implement :

    (1) fetch instruction and decode instruction

    (2) fetch operand and calculate operand

    (3) execute instruction

    (4) all of the above

58. 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

59. 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

60. 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

61. .... is used to build 'intuitive' queries.

(1) SQL   (2) Xbase   (3) QBE   (4) XML

62. To print information from a table, the................ tool is the best choice :

(1) form   (2) report   (3) query   (4) macro

63. To store your picture in a database requires a (n)................field.

(1) BLOB   (2) text   (3) image   (4) logical

64. The................ is used to access one record at a time :

(1) query   (2) filter   (3) form   (4) report

65. 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)

66. An unnormalized relation contains values :

(1) Atomic   (2) Non-Atomic

(3) Classified   (4) None of these

67. 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

68. 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

69. 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

70. 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

71. ....page replacement algorithm suffers from Belady's anamoly.

(1) LRU (2) MRU
(3) FIFO (4) LIFO

72. .... 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

73. .... does the job of allocating a process to the processor.

(1) Long term scheduler (2) Short term scheduler
(3) Medium term scheduler (4) Dispatcher

74. 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

75. 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

76. 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

77. 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

78. 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

79. 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

80. A thread is a ....process.

(1) Heavy weight   (2) Multiprocess

(3) Inter Thread   (4) Light weight

81. A Pseudo code is a ....

(1) Program   (2) Algorithm   (3) Can't say   (4) None

82. SCSI is :

(1) Small Computer System Interface

(2) Small Computer System Interchange

(3) Simple Computer Secondary Information

(4) Simple Computer Secondary Interface

83. BIOS stands for :

(1) Basic Input Output System   (2) Begin Input Output System

(3) Basic Instruction Output System   (4) Base Instruction Output System

84. 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

85. Which of the following memories has the shortest access times ?

(1) Cache memory   (2) Magnetic core memory

(3) RAM   (4) PROM

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86. 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

87. 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

88. In flow chart, diamond box is used for :-

(1) Decision/conditional checking

(2) Data input/output

(3) Calculation and data manipulation

(4) As connector

89. Which Loop is called as Entry Control Loop ?

(1) Do.. While

(2) While....Do

(3) Both

(4) None

90. 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

91. 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

92. 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

93. What is the language of the web ?

(1) Basic

(2) C++

(3) MS Visual Basic

(4) HTML

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94. 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

95. 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

96. 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>

97. 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

98. 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>

99. 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

100. 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