3/8

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2010.

M.Tech. (COMPUTER SCIENCE)

COURSE CODE : 376

Register Number :

Signature of the Invigilator
(with date)

COURSE CODE : 376

Time : 2 Hours

Max : 400 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each question carefully and shade the relevant answer (A) or (B) or (C) or (D) or (E) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you –1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. Partition Exchange Sort is also referred to as

(A) Bubble (B) Quick

(C) Selection (D) Radix

(E) None of the above

2. The similar or related records collection is called

(A) field (B) record

(C) file (D) index

(E) none of the above

3. Which is the linear data structure?

(A) Stacks (B) Trees

(C) Graphs (D) Neither (A) nor (B)

(E) None of the above

4. Each data record has a fixed place in a

(A) relative file (B) indexed file

(C) sequential file (D) indexed sequential file

(E) none of the above

5. Which of the following is not an ACID property?

(A) Atomicity (B) Consistency

(C) Isolation (D) Durability

(E) None of the above

6. In a binary tree, if N is a node, the value at N should be

(A) Larger than Left Child of (N) and less than Right Child of (N)

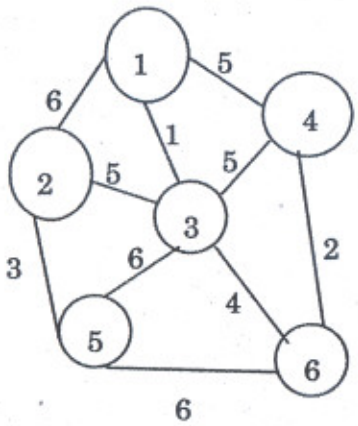
(B) Smaller than Left Child of (N) and Larger than Right Child of (N)

(C) Can be of any order

(D) Should be larger than both Left and Right Childs of (N)

(E) None of the above

7. Find the cost of the minimum spanning tree for the given graph using Kruskal's algorithm.



(A) 11 (B) 15

(C) 16 (D) 17

(E) None of the above

8. Using Binary Search technique, what is the maximum number of comparisons needed for a searching an item in an array consisting of 215 elements?

(A) 215 (B) 9

(C) 8 (D) 108

(E) None of the above

9. The performance of a sorting algorithm are characterized by

(A) Number of swaps (B) Number of comparisons

(C) Both (A) and (B) (D) Can't defined

(E) None of the above

10. Find the degree of the vertex 3 of a directed graph which is represented by

$V = \{1, 2, 3, 4\}$

$E = \{(1, 2), (1, 4), (1, 3), (2, 1), (2, 3), (2, 4)\}\}$

(A) 2 (B) 1

(C) 0 (D) 3

(E) None of the above

11. A switch-tail ring counter is made by using a single D-flip-flop. The resulting circuit is

(A) SR flip-flop (B) JK flip-flop

(C) D flip-flop (D) T flip-flop

(E) None of the above

12. The minimum no of Two input NAND gates required to implement A+A'B +AB'C is equal to?

(A) 2 (B) 3

(C) 4 (D) 7

(E) None of the above

13. Each cell of a Static Random Access Memory contains

(A) Two 3-input NORs and One 2-input X-NOR gate

(B) Two 4-input NORs and One 2-input X-NOR gate

(C) Two 2-input NORs and One 2-input X-NOR gate

(D) One XOR gate and One Two bits shift register

(E) None of the above

14. The time required for a gate to change its state is defined as

(A) Rise time (B) Decay time

(C) Down time (D) Charging time

(E) None of the above

15. Which of the following statement is true?

(A) (A+B) (A+C) = AC + BC (B) (A+B) (A+C) = AB + C

(C) (A+B) (A+C) = AA + BC (D) (A+B) (A+C) = AC + B

(E) None of the above

16. Which of the following is termed as minimum error code?

(A) Binary code (B) Gray code

(C) Excess 3 code (D) Octal code

(E) None of the above

17. Which memory management scheme can only support Uniprogramming?

(A) Partitioned allocation (B) Simple paged allocation

(C) Demand paging (D) Single contiguous allocation

(E) None of the above

18. Relocatable programs

(A) Cannot be used with fixed partitions

(B) Can be loaded almost anywhere in the memory

(C) Do not need a linker

(D) Can be loaded at only one specific location

(E) None of the above

19. What does I/O bound means?

(A) CPU remains idle

(B) I/O remains idle

(C) I/O is never faster than CPU

(D) All the above

(E) None of the above

20. Micro-kernels can suffer from performance decreases due to

(A) Decreased system function overhead

(B) Increased system function overhead

(C) Neither (A) nor (B)

(D) All the above

(E) None of the above

21. Which of the following had a layered microkernel in its first release?

(A) Windows NT

(B) Windows 95

(C) Windows 98

(D) Windows XP

(E) None of the above

22. One of the best known examples of an application virtual machine is

(A) Mac OS Virtual Machine

(B) Windows Virtual Machine

(C) Unix Virtual Machine

(D) Sun Micro system's Java Virtual Machine

(E) None of the above

23. List out which of the following comes under the Process Management?

(A) Waiting Queue

(B) Process Scheduling

(C) Process control block

(D) All of the above

(E) None of the above

24. The more privileged mode is referred as

(A) Kernel mode
(B) System mode
(C) Control mode
(D) All of the above
(E) None of the above

25. "Zombie" means

(A) Process is returning from kernel to user mode
(B) Process is not yet ready to run
(C) Process leaves a record for its parent process to collect
(D) All of the above
(E) None of the above

26. Where can be used to find whether the process is running in user mode or kernel mode?

(A) PWS
(B) SWP
(C) PSW
(D) All of the above
(E) None of the above

27. List out which is not a type of thread

(A) User level threads
(B) Kernel level threads
(C) Software level thread
(D) All the above
(E) None of the above

28. Trap is a kind of

(A) Synchronous interrupt
(B) Asynchronous interrupt
(C) Hardware interrupts
(D) Operating system's interrupt
(E) None of the above

29. Consider a text file whose only data is the value "20000". What is the size of the file?

(A) 2 bytes
(B) 3 bytes
(C) 5 bytes
(D) 8 bytes
(E) None of the above

30. What is the output of the following code?

```
main( )
{ int i=10,j=10;
If(i&&j==10)printf("hello");
Else printf("bye");
}
```

(A) Hello (B) Bye (C) No output (D) Error

(E) None of the above

31. Two types of cookies are

(A) Advanced and remedial (B) Traditional and natural

(C) Remedial and traditional (D) All of the above

(E) None of the above

32. Which of these is not an input to the linker?

(A) Object file (B) Exe file

(C) Static libraries (D) All the above

(E) None of the above

33. The name that is commonly associated with the operational unit is

(A) Files (B) Register

(C) RAM (D) Memory unit

(E) None of the above

34. Go to and exit statements are

(A) Unconditional statements (B) Conditional statements

(C) Semi conditional statements (D) All of the above

(E) None of the above

35. In an array, the subscripts are used to denote the

(A) Size (B) Value

(C) Location (D) Array address

(E) None of the above

36. Normalization is a process associated with

(A) Naming of primary and foreign keys in a database

(B) Avoiding update anomalies

(C) Ensuring ease of access to the database

(D) All of the above

(E) None of the above

37. In database terminology, 'user view' refers

(A) the means of providing access to the database

(B) the method of controlling access to a database

(C) the means of restricting data available to each user

(D) essential for integrity of database content

(E) none of the above

38. Consider the schema R = (STUV) and the dependencies S→T, T→U, U→V an V→S. let R = (R_1 and R_2) be a decomposition. Such that $R_1 \cap R_2 = \emptyset$. Th decomposition is

(A) not in 2 NF

(B) in 2 NF but not in 3 NF

(C) in 3 NF but not in 2 NF

(D) in both 2 NF and 3 NF

(E) none of the above

39. Which of the following is/are correct?

(A) An SQL query automatically eliminates duplicates

(B) An SQL query will not work if there are no indexes on the relations

(C) SQL permits attribute name to be repeated in the same relation

(D) All the above

(E) None of the above

40. Consider the join of a relation R with a relation S. if R has m tuples and S h n tuples. Then the maximum and minimum sizes of the join are

(A) $m + n$ and *o respectively*

(B) mn and *o respectively*

(C) $m + n$ and $| m - n |$ *respectively*

(D) mn and $m + n$ *respectively*

(E) none of the above

41. Which is odd one in the following?

(A) Memory mate
(B) Consistency
(C) Paradox
(D) Double helix
(E) None of the above

42. Which of the following contains complete record of all the activities that affected the contents of a database during a certain period of time?

(A) 4 GL
(B) d-Base
(C) Oracle
(D) SQL
(E) None of the above

43. A Schema describes

(A) data elements
(B) records and files
(C) records and there interrelationships
(D) all of these
(E) none of the above

44. The process of Denormalization is to

(A) to decrease the inconsistencies
(B) to improve query processing performance
(C) to provide flexibility
(D) all the above
(E) none of the above

45. A top-down parser generates

(A) left-most derivation
(B) right-most derivation
(C) right-most derivation in reverse
(D) left-most derivation in reverse
(E) none of the above

46. Which of the following is necessary to preserve the interrelationships between the relations in a database?

(A) Required data
(B) Entity integrity
(C) Domain integrity
(D) Referential integrity
(E) None of the above

47. ———— Relation is a structure that satisfies all the properties of a relation except the property of single-valued entries.

(A) An Unnormalized
(B) A Combined
(C) A Normalized
(D) A Qualified
(E) None of the above

48. ———— causes the size of the table will be doubled if the table becomes full.

(A) Dynamic hashing
(B) Static hashing
(C) Indexed hashing
(D) Virtual hashing
(E) None of the above

49. Two isomorphic graphs must have

(A) same number of vertices and edges
(B) same number of edges and different vertices
(C) same number of vertices and different edges
(D) different number of vertices and different edges
(E) none of the above

50. The length of a Hamiltonian path (if exists) in a connected graph of n vertices is

(A) n – 1
(B) n
(C) n + 1
(D) n / 2
(E) none of the above

51. The regular expression (a | b) (a | b) denotes the set

(A) { a, b, ab, aa }
(B) { a, b, ba, bb }
(C) { a, b }
(D) { aa, ab, ba, bb }
(E) None of the above

52. A parity check usually can detect

(A) One bit error
(B) Double bit error
(C) Three bit error
(D) All of the above
(E) None of the above

53. An activity that verifies compliance with policies and procedures and ensure about the consumed resources is called

(A) Audit
(B) Review
(C) Assessment
(D) Walkthrough
(E) None of the above

54. The effort required for locating and fixing an error in an operational program will be accommodated in the category of

(A) Testability
(B) Maintainability
(C) Portability
(D) Flexibility
(E) None of the above

55. Software Configuration Management controls the evolution and integrity of a product by

(A) Planning
(B) Monitoring and control
(C) Effort Estimation
(D) All of the above
(E) None of the above

56. A data model which is more general than hierarchical approach and allows a node to have multiple immediate superiors is

(A) Network
(B) Flat
(C) Inverse
(D) All of the above
(E) None of the above

57. In standard TTL, the 'totem pole' stage refers to

(A) The multi-emitter input stage
(B) The phase-splitter
(C) The output buffer
(D) All of the above
(E) None of the above

58. An R-S Latch is a

(A) Sequential circuit element
(B) One bit memory element
(C) One clock delay element
(D) All of the above
(E) None of the above

59. Which is/are true regarding interface in Java?

(A) Interface does not have class

(B) Interface has no implementation

(C) Interface are similar to abstract class

(D) All of the above

(E) None of the above

60. The architecture based on Object Request Broker (ORB) is

(A) File sharing architecture

(B) Client/Server architecture

(C) Distributed/Collaborative architecture

(D) All of the above

(E) None of the above

61. The network traffic can be reduced by

(A) Query response method (B) Total file transfer

(C) Monitoring (D) All of the above

(E) None of the above

62. Which of the following is valid?

(A) $(P \Rightarrow Q) \wedge (O \Rightarrow R) \Rightarrow (P \Rightarrow R)$

(B) $(P \Rightarrow Q) \Rightarrow (1P \Rightarrow]Q)$

(C) $((P \Rightarrow R) \vee (O \Rightarrow R)) \Rightarrow (P \vee Q) \Rightarrow R)$

(D) All of the above

(E) None of the above

63. The main source of loss in transmission is due to

(A) Attenuation (B) Internal Resistive Forces

(C) External forces (D) All of the above

(E) None of the above

64. Minimum number of address lines required to interface 2KB of memory with one b word length are

(A) 10 (B) 11 (C) 12 (D) 13

(E) None of the above

65. In data transmission, the bit coding scheme used to represent a byte is typically

(A) EBCDIC
(B) ASCII
(C) Hexadecimal
(D) All of the above
(E) None of the above

66. The front-end processor is dedicated to perform which of the following functions?

(A) Polling
(B) Synchronization
(C) Error checking
(D) All of the above
(E) None of the above

67. Serial input data of 8085 can be loaded into the accumulator by

(A) Executing a SIM instruction
(B) Executing RST1
(C) Using TRAP
(D) All of the above
(E) None of the above

68. In order to check piracy, software developers have been providing their packages with some sort of copy protection. Which of the following has been used for this purpose?

(A) Software lock
(B) Hardware lock
(C) Laser protection
(D) All of the above
(E) None of the above

69. A typical coverage area for a wireless LAN has a diameter of

(A) 50 to 100 m
(B) 400 to 500 m
(C) More than 1000 m
(D) 500 to 600 m
(E) None of the above

70. The purpose of Pass 2 stage of the compilation is to

(A) Assemble instructions and generate data.
(B) Only assemble instructions
(C) Only generate data
(D) Decode the Instructions
(E) None of the above

71. To reduce file search times, the storage media may be divided into

(A) Blocks
(B) Cells
(C) Cylinder
(D) Records
(E) None of the above

72. A completely binary tree with the property that the value of each node is at least as large as the value of its child nodes, is defined as

(A) Selection Sort
(B) Quick Sort
(C) Merge Sort
(D) Heap Sort
(E) None of the above

73. The 8279 require an internal clock frequency of

(A) 150 KHZ
(B) 100 KHZ
(C) 50 KHZ
(D) 25 KHZ
(E) None of the above

74. TRAP is a

(A) Level and edge–sensitive
(B) Edge–sensitive
(C) Level sensitive
(D) All the above
(E) None of the above

75. A latch is commonly used to interface

(A) I/P device
(B) O/P device
(C) IO device
(D) All the above
(E) None of the above

76. The maximum internal clock of 8085A is

(A) 5 MHz
(B) 3.03 MHz
(C) 6 MHz
(D) All the above
(E) None of the above

77. RS-232C, the commonly used voltage levels are

(A) +12v & –12v
(B) 5v & –5v
(C) 12.5v & –12.5v
(D) All the above
(E) None of the above

78. The basic unit of a blue tooth system is

(A) Scatternet
(B) Piconet
(C) Nodes
(D) All the above
(E) None of the above

79. When routers cannot handle packets, they just throw them away which is termed as

(A) Warning bit
(B) Flooding
(C) Load Shedding
(D) All the above
(E) None of the above

80. The variation in the packet arrival times is known as

(A) Time Interval
(B) Time Variation
(C) Jitter
(D) All the above
(E) None of the above

81. Which one of the following is not used as middleware?

(A) RPC
(B) TCP/IP
(C) UDP
(D) All the above
(E) None of the above

82. The RMI Core consists of

(A) Three classes and Interfaces
(B) Six classes and Interfaces
(C) Nine classes and Interfaces
(D) All the above
(E) None of the above

83. Which of the following checks the reliability of characters (parity) or blocks of data?

(A) Flow Control
(B) Error Control
(C) Error check
(D) All the above
(E) None of the above

84. If the service is reliable, the receiver confirms correct receipt of each frame by sending back an

(A) Reply frame
(B) Status frame
(C) Acknowledgement Frame
(D) All the above
(E) None of the above

85. The number of bit positions in which two code words differs termed as

(A) Distance measure
(B) Huffman Code
(C) Hamming Distance
(D) All the above
(E) None of the above

86. The technique of temporarily delaying the outgoing acknowledgements so that they can be hooked on to the next outgoing frame is known as

(A) Byte stuffing
(B) Piggy backing
(C) Character Stuffing
(D) All the above
(E) None of the above

87. The Internet Protocol Standard that specifies a way for programs to manage the real time transmission of multimedia data over the network is termed as

(A) Real Time Control
(B) Real Time Transport Control
(C) Real Time Transport Control Protocol
(D) All of the above
(E) None of the above

88. Do DTD's follow the inheritance principle?

(A) No
(B) Yes
(C) DTD's are, recommendation only
(D) All of the above
(E) None of the above

89. The character encoding is

(A) Method used to represent numbers in a character
(B) Method used to represent character in a number
(C) Method used to represent character as a character
(D) All of the above
(E) None of the above

90. The design model, which is based on information hiding, is

(A) ERD model
(B) DFD model
(C) Client-Server model
(D) All the above
(E) None of the above

91. The model that is characterized by the assessment of management risk items is

(A) Waterfall model
(B) Exploratory programming
(C) Spiral model
(D) All the above
(E) None of the above

92. The measure of closeness of the relationships between the system's components is

(A) Cohesion
(B) Coupling
(C) Quality measure
(D) All the above
(E) None of the above

93. One of the benefits of small programming teams is

(A) Reducing the cost
(B) Minimizing communication problems
(C) Utilizing skills
(D) All the above
(E) None of the above

94. The waterfall model is the most widely adopted

(A) Deliverable model
(B) Efficient model
(C) Economic model
(D) All of the above
(E) None of the above

95. Alpha and Beta tests are useful to

(A) Accept the system
(B) Foresee how the customer will use the system
(C) Validate the system
(D) All of the above
(E) None of the above

96. Artificial Intelligence is concerned with

(A) Designing Intelligent Systems

(B) Introducing the idea of learning to Computers

(C) Introducing reasoning Skills

(D) All of the above

(E) None of the above

97. Static variables are sometimes called

(A) class variables (B) functional variables

(C) dynamic variables (D) auto variables

(E) all of the above

98. Which of the following is/are approaches towards AI?

(A) Human-Centered Approach (B) Rationalist approach

(C) Global Approach (D) Both (A) & (B)

(E) None of the above

99. What is the protocol used for getting the physical address by supplying IP address of a node?

(A) ARP (B) RARP

(C) BOOTP (D) DHCP

(E) None of the above

100. The Heuristics evaluation function gives

(A) Optimized Solution (B) Direct solution

(C) Different solution (D) All of the above

(E) None of the above