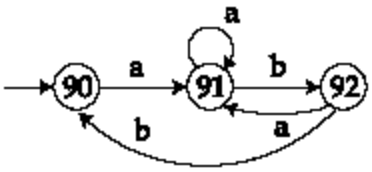
Computer Science and Applications

PAPER—II

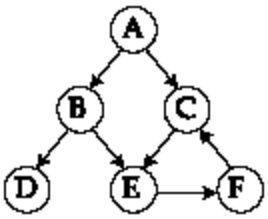
Note : This paper contains fifty (50) objective-type questions, each question carrying two (2) marks. Attempt all of them.

1. The following determiniotic finite automata recognizes :



(A) Set of all strings containing 'ab'
(B) Set of all strings containing 'aab'
(C) Set of all strings ending in 'abab'
(D) None of the above

2. Depth ion travels of the following directed graph is :



(A) A B C D E F
(B) A B D E F C
(C) A C E B D F
(D) None of the above

3. The maximum number of nodes in a binary tree of depth 10 :
(A) 1024 (B) $2^{10} - 1$ (C) 1000 (D) None of the above

4. The regular expression given below describes :

$r = (1+01)^*(0+\lambda)$

(A) Set of all string not containing '11'
(B) Set of all string not containing '00'
(C) Set of all string containing '01'
(D) Set of all string ending in '0'

5. Which of the following language is regular :
(A) $L = \{ a^n b^n \mid n \geq 1 \}$
(B) $L = \{ a^n b^m c^n d^m \mid n, m \geq 1 \}$
(C) $L = \{ a^n b^m \mid n, m \geq 1 \}$
(D) $L = \{ a^n b^m c^n \mid n, m \geq 1 \}$

6. 2's complement of -100 is :

(A) 00011100 (B) 10011101 (C) 10011100 (D) 11100100

7. Which of the following expression remove hazard form : $xy + z\overline{x}$?

(A) $xy + z\overline{x}$ (B) $xy + z\overline{x}$

(C) $xy + z\overline{x} + yz$ (D) $xy + z\overline{x} + wz$

8. How many 1's are present in the binary representation of $15 \times 256 + 5 \times 16 + 3$?

(A) 8 (B) 9 (C) 10 (D) 11

9. If $A \oplus B - C$, then :

(A) $A \oplus C - B$ (B) $B \oplus C - A$

(C) $A \oplus B \oplus C - 1$ (D) $A \oplus B \oplus C - 0$

10. What is the maximum counting speed of a 4-bit binary counter which is composed of Flip-Flop with a propagation delay of 25ns ?

(A) 1MHz (B) 10MHz (C) 100MHz (D) 4MHz

11. The following loop in 'C' :

int i = 0;

While (i + + < 0)i − − ;

(A) will terminate

(B) will go into an infinite loop

(C) will give compilation error

(D) will never be executed

12. In case of right shift bitwise operator in 'C' language, after shifting n bits, the leftmost n bits :

(A) are always filled with zeroes

(B) are always filled with ones

(C) are filled with zeroes or ones and is machine dependent

(D) none of the above

13. What keyboard in class specification helps to hide data :

(A) Public (B) Private (C) Static (D) Void

14. What is the output of the following 'C' program ?

main( )

{printf ("%×", −1>>4);}

(A) ffff (B) Offf (C) OOOO (D) fffO

15. Runtime polymorphism can be achieved by :
(A) Accessing virtual function through the pointer of the base class
(B) Accessing virtual function through the object
(C) The derived class
(D) None of these

16. Which of the following statements is wrong ?
(A) 2-phase Locking Protocols suffer from dead locks.
(B) Time - Stamp Protocols suffer from more aborts.
(C) Time - Stamp Protocols suffer from cascading roll back where as 2-phase locking Protocol donot.
(D) None of these

17. A recursive foreign key is a :
(A) references a relation (B) references a table
(C) references its own relation (D) references a foreign key.

18. A subclass having more than one super class is called :
(A) Category (B) Classification
(C) Combination (D) Partial Participation

19. A Relation R = {A,B,C,D,E,F} is given with following set of functional dependencies : $F = \{A \rightarrow B, AD \rightarrow C, B \rightarrow F, A \rightarrow E\}$. Which of the following is Candidate Key ?
(A) A (B) AC (C) AD (D) None of these

20. Which statement is false regarding data Independence :
(A) Hierarchical data model suffers from data Indepedence.
(B) Network model suffers from data Independence.
(C) Relational model suffers only from logical data Independence.
(D) Relational model suffers only from physical data Independence.

SET - II

21. The time required to find shortest path in a graph with n vertices and e edges is :
(A) O(e) (B) O(n) (C) $O(e^2)$ (D) $O(n^2)$

22. Pre order is also known as :
(A) Depth first order (B) Breadth first order
(C) Topological order (D) Linear order

23. The equivalent postfix express for d/(e+f) + b*c is :
(A) defbc/++ (B) def+/bc+*
(C) def+/bc*+ (D) None of these

24. Which algorithm has some average, worst case and best case time :

(A) Binary search
(B) Maximum of n numbers
(C) Quick sort
(D) Fibonacci search

25. Application of data structure is queue is :

(A) Level wise printing of tree.
(B) Implementation of priority queues.
(C) Function call implementation
(D) Depth first search in a graph.

26. In case of Bus/Tree topology signal balancing issue is overcome by :

(A) Strong Transmitter
(B) Polling
(C) Segmentation
(D) Modulation

27. Which of the following techniques are used to control data flow ?

1. Windowing 2. Routing 3. RPCs 4. Buffering

(A) 1,4 (B) 2,3,4 (C) 1,3,4 (D) 1,2,3,4

28. TDM is _____ .

(A) A primary/secondary type protocol
(B) A peer/peer protocol
(C) A Non-priority peer/peer protocol
(D) A priority type protocol

29. What services does the Internet Layer provide ?

1. Quality of service 2. Routing
3. Addressing 4. Connection-oriented delivery
5. Framming bits

(A) 1,2,3 (B) 2,3,4 (C) 1,3,4,5 (D) 2,3,4,5

30. Which of the following protocols is used to prevent looping ?

(A) OSPF
(B) Spanning tree
(C) SFF
(D) Fragment free switching

31. The parsing technique that avoids back tracking is :

(A) Top - down parsing
(B) Recursive - descent parsing
(C) Predicative
(D) Syntax tree

32. A Top - down Parse generates :

(A) Right - most derivation.
(B) Right - most derivation, in reverse.
(C) Left - most derivation.
(D) Left - most derivation in reverse.

33. In an absolute loading scheme, which loader function is accomplished by programmer ?
(A) Allocation (B) Linking
(C) Rellocation (D) Both (A) and (B)

34. Symbol table can be used for :
(A) Checking type compability
(B) Suppressing duplication of error message
(C) Storage allocation
(D) All of these above

35. Moving process from main memory to disk is called :
(A) Caching (B) Termination
(C) Swapping (D) Interruption

36. Part of a program where the shared memory is accessed and which should be executed indivisibly, is called :
(A) Semaphores (B) Directory
(C) Critical section (D) Mutual exclusion

37. Windows is a _____ operating system :
(A) Non-preemptive (B) Preemptive
(C) Multi-user (D) Real time

38. The "nice" command is used in Unix :
(A) to decrease the priority of a process.
(B) to increase the priority of a process.
(C) to get the highest priority.
(D) nothing to do with the priorities.

39. Which page replacement policy suffers from Belady's anomaly ?
(A) LRV (B) LFU (C) FIFO (D) OPTIMAL

40. Cache memory is :
(A) High-Speed Register (B) Low-Speed RAM
(C) Non-Volatile RAM (D) High-speed RAM

41. Which of the following combination is preferred with respect to cohesion and coupling :
(A) low and low (B) low and high
(C) high and low (D) high and high

42. Difference between flow-chart and data-flow diagram is :
(A) there is no difference
(B) usage in high level design and low level design
(C) control flow and data flow
(D) used in application programs and system programs

43. Match the following :

(a)	Unit test	(i)	Requirements
(b)	System test	(ii)	Design
(c)	Validation test	(iii)	Code
(d)	Integration test	(iv)	System Engineering

Which of the following is true :

	(a)	*(b)*	*(c)*	*(d)*
(A)	(ii)	(iii)	(iv)	(i)
(B)	(i)	(ii)	(iv)	(iii)
(C)	(iii)	(iv)	(i)	(ii)
(D)	None of the above			

44. Problems with waterfall model are :

1. Real projects rarely follow this model proposes
2. It is often difficult for the customer
3. Working model is available only in the end
4. Developers are delayed unnecessarily

Which of the following is true :

(A) 1 and 4 only (B) 2 and 3 only
(C) 1, 2 and 3 only (D) 1, 2, 3 and 4

45. Which one of the following is a object-oriented approaches :

(A) The Booch method (B) The Rambaugh method
(C) The Load and Yomdon method (D) All of the above

46. Which technical concept sets cellular apart from all preceding mobile/radio systems ?

(A) FM-Transmission (B) Duplex Functionality
(C) Frequency Reuse (D) TDMA Technology

47. Wireless interconnection to the PSTN are also known as :

(A) Localities (B) CLECs
(C) POPs (D) IXCs

48. Dimentional modeling in Data Mining refers to :

(A) view and interrogate data (B) define structures and store data
(C) retrieve information only (D) none of these

49. The U-NII (Unlicensed National Information Infrastructure) band operates at the _____ frequency :

(A) 2.4 GHz (B) 33 MHz (C) 5 GHz (D) 16 GHz

50. Which digital radio technology employs an N = 1 frequency-reuse plan ?

(A) GSM (B) TDMA (C) D AMPS (D) CDMA

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