

PAPER – II
COMPUTER SCIENCE

Note : Attempt all the questions. Each question carries *two* (2) marks.

1. An FSM can be considered to be a TM
 - 1) Of finite tape length, rewinding capability and unidirectional tape movement
 - 2) Of finite tape length, without rewinding capability and unidirectional tape movement
 - 3) Of finite tape length, without rewinding capability and bidirectional tape movement
 - 4) Of finite tape length, rewinding capability and bidirectional tape movement

2. The functional difference between SR flip-flop and JK flip-flop is that
 - 1) JK flip-flop is faster than SR flip-flop
 - 2) JK flip-flop has a feed back path
 - 3) JK flip-flop accepts both inputs
 - 4) JK flip-flop does not require external clock

3. The black box in the following figure consists of a minimum complexity circuit that uses only AND, OR and NOT gates. The function $f(x, y, z) = 1$ whenever x, y are different and 0 otherwise. In addition the 3 inputs x, y, z are never all the same value. Which of the following equation lead to the correct design for the minimum complexity circuit?



- 1) $x'y + xy'$
- 2) $x + y'z$
- 3) $x'y'z' + x y' z$
- 4) $xy + y'z + z'$

4. Choose the correct statement that is a combination of these two statements,

Statement 1: `char *p;`

Statement 2: `p = (char*) malloc(100);`

- 1) `char p = *malloc(100);`
- 2) `char *p = (char*)malloc(100);`
- 3) `char *p = (char) malloc(100);`
- 4) None of the above

5. Which operator is having the highest precedence?

- 1) postfix
- 2) unary
- 3) shift
- 4) equality

6. The operator used for dereferencing or indirection is

- 1) `*`
- 2) `&`
- 3) `->`
- 4) `->>`

7. A relation is in _____ if an attribute of a composite key is dependent on an attribute of other composite key.

- 1) Normal Form
- 2) BCNF
- 3) 1NF
- 4) 2NF

8. The Postfix equivalent of prefix expression $+PQ-RS$ is
- 1) $PQ+RS/-$
 - 2) $PQ+RS-/-$
 - 3) $PQRS+/-$
 - 4) $PQ+/RS-$
9. Which of the following data structure is most suitable for implementing recursive computations?
- 1) Stack
 - 2) Queue
 - 3) Array
 - 4) Linked List
10. Which type of traversal on a binary tree resembles the depth first search of a graph?
- 1) Postorder
 - 2) Preorder
 - 3) Inorder
 - 4) Level Order
11. Find the indegree of node V_2 for a directed Graph G , represented in the following adjacency matrix

	V_1	V_2	V_3	V_4
V_1	0	1	1	0
V_2	0	0	0	0
V_3	0	1	0	0
V_4	0	1	0	0

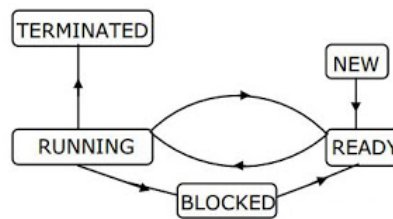
- 1) 0
- 2) 1
- 3) 2
- 4) 3

12. Telephone companies normally provide a voltage of _____ to power telephones
- 1) +24 volts DC
 - 2) -24 volts DC
 - 3) +48 volts DC
 - 4) -48 volts DC
13. The identification of common sub-expression and replacement of run-time computations by compile-time computations is
- 1) local optimisation
 - 2) loop optimization
 - 3) constant folding
 - 4) data flow analysis
14. _____ is the first step in the evolution of programming languages.
- 1) machine language
 - 2) assembly language
 - 3) code language
 - 4) high level language
15. Which of the following *allows data transfer between memory and peripherals?*
- 1) Microprocessor
 - 2) DMA technique
 - 3) Register
 - 4) Decoder

16. Which of the following scheduling algorithms is non-preemptive?

- 1) Round Robin
- 2) First-In First-Out
- 3) Multilevel Queue Scheduling
- 4) Multilevel Queue Scheduling with Feedback

17. The process state transition diagram in the following Figure is representative of



- 1) a batch operating system
- 2) an operating system with a preemptive scheduler
- 3) an operating system with a non-preemptive scheduler
- 4) a uni-programmed operating system

18. The differences between malloc() and calloc() are:

- 1) Malloc is used for dynamic allocation of memory, while calloc can't be used for that purpose
- 2) Malloc needs only one argument. while calloc needs two.
- 3) unlike malloc, calloc allocates memory and initializes it to 0.
- 4) Both (2) and (3)

19. The correct formula for Schedule performance index is,

- 1) $SPI = BCWS/BCWP$
- 2) $SPI = BCWP/BCWS$
- 3) $SPI = BCWP - BCWS$
- 4) $SPI = BCWP + BCWS$

20. DHCP stands for

- 1) Dynamic Host Configuration Protocol
- 2) Digital Host Communication Provider
- 3) Digital Host Communication Protocol
- 4) Dynamic Host Configuration Provider

21. Which IEEE 802.11 Extension provides AES and DES security standards?

- 1) 802.11a
- 2) 802.11b
- 3) 802.11g
- 4) 802.11i

22. Given desired class C and population P , lift is defined as

- 1) the probability of class C given population P divided by the probability of C given a sample taken from the population.
- 2) the probability of population P given a sample taken from P .
- 3) the probability of class C given a sample taken from population P .
- 4) the probability of class C given a sample taken from population P divided by the probability of C within the entire population P .

23. A variation of the star schema that allows more than one central fact table.

- 1) snowflake schema
- 2) linked star schema
- 3) distributed star schema
- 4) constellation schema

24. Let $A = \{ a, b, c, d, e \}$ and $B = \{ a, b, c, d, e, f, g, h \}$ then $A - B$ is

- 1) A
- 2) B
- 3) $A \cap B$
- 4) Φ

25. A Relation R on a Set A is called a partial order, if (A, R) is

- 1) Reflexive relation
- 2) Symmetric relation
- 3) Reflexive, Anti-Symmetric and Transitive relation
- 4) Reflexive, Symmetric and Transitive relation

26. If A and B are two independent events such that $P(A) = 0.5$ and $P(A \cup B) = 0.8$ then $P(B)$ is

- 1) 0.6
- 2) 0.5
- 3) 0.8
- 4) 0.05

27. A Context – free grammar G is ambiguous if there is some string w belongs to $L(G)$ that has two distinct

- 1) Graph only
- 2) Parse trees
- 3) Grammars
- 4) Ordered

28. The dual of the switching function $x + yz$ is:
- 1) $x + yz$
 - 2) $\bar{x} + \bar{y}\bar{z}$
 - 3) $x(y + z)$
 - 4) $\bar{x}(\bar{y} + \bar{z})$
29. The sum of two hexadecimal numbers 23D and 9AA gives the hexadecimal number
- 1) AF7
 - 2) BF6
 - 3) BE7
 - 4) BE5
30. An AND gate has 7 input. How many input words are in its truth table?
- 1) 64
 - 2) 32
 - 3) 16
 - 4) 128
31. Functions defined with class name are called as
- 1) Inline function
 - 2) Friend function
 - 3) Constructor
 - 4) Static function
32. Identify the incorrect file opening mode from the following.
- 1) r
 - 2) w
 - 3) x
 - 4) a

33. _____ refers to the accuracy and consistency of data stored in a database.

- 1) Entity
- 2) Attributes
- 3) Primary Key
- 4) Data Integrity

34. _____ act as a cross-reference between tables.

- 1) Primary Key
- 2) Candidate Key
- 3) Foreign Key
- 4) Super Key

35. A synonym is an alias for _____ object

- 1) Schema
- 2) Sequence
- 3) Segment
- 4) View

36. _____ type of relational database which incorporate concepts of object database

- 1) Functional object system
- 2) Behavioral relational system
- 3) Extended relational system
- 4) Extended objects system

- 37.** The average search time of hashing with linear probing will be less if the load factor
- 1) is far less than one
 - 2) equals one
 - 3) is far greater than one
 - 4) is greater than one
- 38.** Which of the following connects two or more networks and provides necessary translation?
- 1) Protocol
 - 2) Interface
 - 3) Gateway
 - 4) Physical medium
- 39.** "BAUD" rate means
- 1) The number of bits transmitted per unit time
 - 2) The number of bytes transmitted per unit time
 - 3) The rate at which the signal changes
 - 4) The number of bits transmitted per unit second
- 40.** The entire hostname has a maximum of
- 1) 255 characters
 - 2) 127 characters
 - 3) 63 characters
 - 4) 31 characters
- 41.** Which of the following devices direct network traffic based not by MAC addresses but by software-configured network addresses?
- 1) Router
 - 2) Hub
 - 3) Bridge
 - 4) NIC

42. What is the function of YACC command in compilation process?

- 1) token splitting
- 2) parser generation
- 3) intermediate-code generation
- 4) code generation

43. From this context-free grammar $E \Rightarrow E * E$,
which of the following can be arrived by leftmost-derivation?

- (a) $E \Rightarrow E * I$
- (b) $E \Rightarrow I * E$
- (c) $E \Rightarrow a * E$

- 1) only (a)
- 2) only (b)
- 3) only (c)
- 4) both (b) and (c)

44. Fork is

- 1) the dispatching of a task
- 2) the creation of a new job
- 3) the creation of a new process
- 4) increasing the priority of a task

45. If there are 32 segments, each of size 1 K byte, then the logical address should have

- 1) 13 bits
- 2) 14 bits
- 3) 15 bits
- 4) 16 bits

46. SRD stands for
- 1) Software Requirements Definition
 - 2) Structured Requirements Definition
 - 3) Software Requirements Diagram
 - 4) Structured Requirements Diagram
47. Changes made to an information system to add the desired but not necessarily the required features is called
- 1) Preventative maintenance
 - 2) Adaptive maintenance
 - 3) Corrective maintenance
 - 4) Perfective maintenance
48. Optimization, Defect Prevention, and Quality Control. Its come under the
- 1) CMM Level 2
 - 2) CMM Level 3
 - 3) CMM Level 4
 - 4) CMM Level 5
49. What would be investigated during Requirements analysis?
- 1) System performance, Test Scheduling, Organizational Structure
 - 2) Languages, Platforms, Competition
 - 3) System Context, User Populations, User Tasks
 - 4) Verification, Formal Methods, Accuracy
50. _____ command lists the host name, PVM daemon task id, architecture type, and relative speed rating.
- 1) conf
 - 2) ps-a
 - 3) setenv
 - 4) id

ROUGH WORK

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