

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. Which of the regular expressions corresponds to this grammar ?
 $S \rightarrow AB/AS, A \rightarrow a/aA, B \rightarrow b$
(A) aa^*b^+ (B) aa^*b (C) $(ab)^*$ (D) $a(ab)^*$
2. The proposition $\sim Q \vee P$ is equivalent to :
(A) (B) (C) (D)
3. The number of edges in a complete graph with N vertices is equal to :
(A) $N(N-1)$ (B) $2N-1$ (C) $N-1$ (D) $N(N-1)/2$
4. Which of the following is not true ?
(A)
(B) $A-B = A \cap \sim B$
(C)
(D)
5. If (a^2-b^2) is a prime number where a and b $\in N$, then :
(A) $a^2-b^2=3$ (B) $a^2-b^2=a-b$
(C) $a^2-b^2=a+b$ (D) $a^2-b^2=5$
6. The hexadecimal equivalent of $(10111)_2 \times (1110)_2$ is :
(A) 150 (B) 241 (C) 142 (D) 101011110
7. An example of a self complementing code is :
(A) 8421 code (B) Gray code
(C) Excess-3 code (D) 7421 code
8. A sum of products expression can be implemented with _____ logic gates.
(A) AND – OR (B) NAND – OR
(C) AND – NOT (D) OR – AND
9. The characteristic equation of the D flip-flop is :
(A) (B) $Q=D$ (C) $Q=1$ (D) $Q=0$

10. Which of the following logic is the fastest ?
(A) RTL (B) ECL (C) HTL (D) HCL
11. When a function is recursively called, all automatic variables :
(A) are initialized during each execution of the function
(B) are retained from the last execution
(C) are maintained in a stack
(D) are ignored
12. Enumeration variables can be used in :
(A) search statement like an integer variable
(B) break statement
(C) preprocessor commands
(D) function statement
13.

```
int arr[ ]={1, 2, 3, 4}
int count;
incr( ) {return ++count;}
main( )
{
    arr[count++] = incr( );
    printf("arr[count] = %d\n", arr[count]);
}
```


The value printed by the above program is :
(A) 1 (B) 2 (C) 3 (D) 4
14. When one-dimensional character array of unspecified length is assigned an initial value :
(A) an arbitrary character is automatically added to the end of the string
(B) '\0' is added to the end of the string
(C) length of the string is added to the end of the string
(D) 'end' is added to the end of the string
15. The declaration "unsigned u" indicates :
(A) u is an unsigned character
(B) u is an unsigned integer
(C) u is a character
(D) u is a string

16. Which possibility among the following is invalid in case of a Data Flow Diagram ?
(A) A process having in-bound data flows more than out-bound data flows
(B) A data flow between two processes
(C) A data flow between two data stores
(D) A data store having more than one in-bound data flows
17. In DBMS, deferred update means :
(A) All the updates are done first but the entries are made in the log file later
(B) All the log files entries are made first but the actual updates are done later
(C) Every update is done first followed by a writing on the log file
(D) Changes in the views are deferred till a query asks for a view
18. Which statement is false regarding data independence ?
(A) Hierarchical data model suffers from data independence
(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
19. Which of the following tools is not required during system analysis phase of system development life cycle ?
(A) Case tool
(B) RAD tool
(C) Reverse engineering
(D) None of these
20. Two phase protocol in a database management system is :
(A) a concurrency mechanism that is not deadlock free
(B) a recovery protocol used for restoring a database after a crash
(C) Any update to the system log done in 2-phases
(D) not effective in Database
21. Which algorithm has same average, worst case and best case time ?
(A) Binary search
(B) Maximum of n number
(C) Quick sort
(D) Fibonacci search
22. Binary search tree is an example of :
(A) Divide and conquer technique
(B) Greedy algorithm
(C) Back tracking
(D) Dynamic Programming
23. What is the time required to insert an element in a stack with linked implementation ?
(A) $O(\log_2 n)$
(B) $O(n)$
(C) $O(n \log_2 n)$
(D) $O(1)$

24. The equivalent postfix expression for $\frac{d}{(e+f)} + b*c$:
- (A) defbc/+ + * (B) def + /bc + *
(C) def + /bc * + (D) None of these
25. Which one of the following is a physical data structure ?
- (A) Array (B) Linked lists
(C) Stacks (D) Tables
26. How many DS1 signals are transported on a DS3 signal ?
- (A) 24 (B) 672 (C) 14 (D) 28
27. A 10 BASE-2 network is limited to :
- (A) 20 bytes per data field (B) 30 stations per segment
(C) 40 segments (D) 50 feet of cable
28. The network 198.78.41.0 is a :
- (A) Class A Network (B) Class B Network
(C) Class C Network (D) Class D Network
29. The subnet mask 255.255.255.192
- (A) Extends the network portion to 16 bits
(B) Extends the network portion to 26 bits
(C) Extends the network portion to 36 bits
(D) Has no effect on the network portion of an IP address
30. The LAPB frame structure and the frame structure of SDLC are :
- (A) Opposite (B) Identical
(C) Reversed (D) Non-identical
31. Linking
- (A) cannot be performed before relocation
(B) cannot be performed after relocation
(C) can be performed both before and after relocation
(D) is not required if relocation is performed
32. Which of the following is the most general phase-structured grammar ?
- (A) Regular (B) Context-sensitive
(C) Context free (D) Syntax tree

33. A compiler for a high level language that runs on one machine and produces code for a different machine is called :
 (A) Optimizing (B) One pass compiler
 (C) Cross compiler (D) Multipass compiler
34. The 'K' in LR (R) cannot be :
 (A) 0 (B) 1 (C) 2 (D) None of these
35. Peer-hole optimization is a form of :
 (A) loop optimization (B) local optimization
 (C) constant folding (D) data flow analysis
36. An operating system is :
 (A) Collection of hardware components (B) Collection of input-output devices
 (C) Collection of software routines (D) All the above
37. _____ is one of pre-emptive scheduling algorithm.
 (A) Shortest-Job-first (B) Round-robin
 (C) Priority based (D) Shortest-Job-next
38. A software to create a Job Queue is called _____.
 (A) Linkage editor (B) Interpreter
 (C) Driver (D) Spooler
39. A permanent database of a general model of compiler is _____.
 (A) Identifier table (B) Page map table
 (C) Literal table (D) Terminal table
40. Loading operating system from secondary memory to primary memory is called _____.
 (A) Compiling (B) Booting
 (C) Refreshing (D) Reassembling
41. Software Cost Performance index (CPI) is given by :
 (A) $\frac{BCWP}{ACWP}$ (B)
 (C) $BCWP - ACWP$ (D) $BCWP - BCWS$
 Where : BCWP stands for Budgeted Cost of Work Performed
 BCWS stands for Budget Cost of Work Scheduled
 ACWP stands for Actual Cost of Work Performed

42. Software Risk estimation involves following two tasks :
(A) risk magnitude and risk impact
(B) risk probability and risk impact
(C) risk maintenance and risk impact
(D) risk development and risk impact
43. In a object oriented software design, 'Inheritance' is a kind of _____.
(A) relationship (B) module
(C) testing (D) optimization
44. Reliability of software is directly dependent on :
(A) quality of the design
(B) number of errors present
(C) software engineer's experience
(D) user requirement
45. 'Abstraction' is _____ step of Attribute in a software design.
(A) First (B) Final (C) Last (D) Middle
46. The frequency band allocated for the downlink in GSM is :
(A) 960 - 985 MHz (B) 935 - 960 MHz
(C) 920 - 945 MHz (D) 930 - 955 MHz
47. Which of the following is an EDI standard ?
(A) ANSI X.15 (B) ANSI X.14
(C) ANSI X.13 (D) ANSI X.12
48. An INT file in Windows 95 is :
(A) a program file (B) a message file
(C) a text file (D) link file
49. Link analysis operation in data mining uses _____ technique.
(A) Classification (B) Association discovery
(C) Visualisation (D) Neural clustering
50. The maximum size of SMS in IS-95 is _____ octets.
(A) 120 (B) 95 (C) 128 (D) 64

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