

1. Ans. D

The inverse of A is skew-symmetric so Option D is correct .

2. Ans. D

$A \cap B = \Phi$ and $A \cup B = A + B - A \cap B$ (principle of inclusion-exclusion) therefore $A \cup B \leq A + B$

3. Ans. C

$F(x) = x^3 - 3x - 5$ and $f'(x) = 3x^2 - 3$, beginning with $x_0 = 3$, the iterates are given in table 2 which shows a stop at iteration no. 5 since the error is $x^5 - x^4 < 10^{-5}$ resulting in a root of $x^* = 2.27902$, see figure

Table 2: Iterations for Example-2

Iteration no.	x_n	$f(x_n)$	$f'(x_n)$	x_{n+1} using (1)
1	$x_0 = 3$	13	24	2.45833
2	2.45833	2.48165	15.13016	2.29431
3	2.29431	0.19399	12.79158	2.27914
4	2.27914	0.00153	12.58344	2.27902
5	2.27902	0.000015	12.581796	2.27902

4. Ans. D

A data dictionary is file or set of files that contains a database metadata, this sometimes include the names and description of various tables (records or Entites) and their contents (fields) plus additional details .so D is correct ans.

5. Ans. A

2 Phase Locking (2PL) is a concurrency control method that guarantees serializability. The protocol utilizes locks, applied by a transaction to data, which may block (interpreted as signals to stop) other transactions from accessing the same data during the transaction's life. 2PL may be lead to deadlocks that result from the mutual blocking of two or more transactions.

6. Ans. B

ACID is know as Atomicity, consistency, isolation, durability

7. Ans. B

Select emp, Dept from overtime -Allowance;

Emp	Dept	Dept	OT
RAMA	Mechanical	Mechanical	5000
GOPI	Electrical	Electrical	2000
SINDHU	Computer	Computer	4000
MAHESH	Civil	Civil	1500

Same table will be printed after applying Natural join No. of Rows by count fn will return = 4

8. Ans. B

Dashed ellipse is denoted as derived attributes in ER Model.

9. Ans. B

$A = \{1, 2, 3, 4, 5, 6, 7, 8\}$ And $B = \{1, 3, 5, 6, 7, 8, 9\}$

A (symmetric difference) B = Elements which are in A but not in B \cup Elements which are in B but not in A

$$= (A - B) \cup (B - A)$$

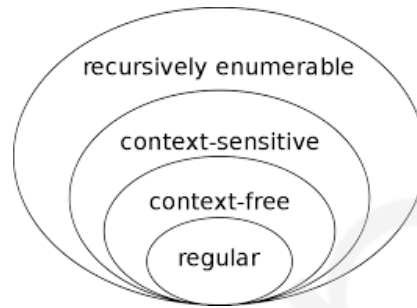
$$= \{ 2, 4 \} \cup \{ 9 \} = \{ 2, 4, 9 \}$$

Option B is correct.

10. Ans. C

The problem 3-SAT and 2-SaT are now as NP-complete and in P, respectively

11. Ans. D



Both are correct since context sensitive is a proper subset of recursive languages.

12. Ans. D

Deterministic PDA cannot handle languages or grammars with ambiguity, but NDPDA can handle languages with ambiguity and any context-free grammar. So every nondeterministic PDA can not be converted to an equivalent deterministic PDA.

13. Ans. C

It has to be started by a letter followed by any number of letters (or) digits.

14. Ans. B

searching for only one half of the list. leading to $T(n) = T(n/2) + \text{constant time}$ in comparing and finding mid element.

15. Ans. D

Selection sorting is in place algorithms needs the minimum number of swaps.

16. Ans. D

Question is wrong so ans should be D.

17. Ans. B

Breadth First Search uses a Queue data Structure.

18. Ans. B

$$\text{No of RAM} = 32K \times 32 / 128 \times 8$$

$$= 32 * 1024 * 32 / 128 * 8$$

$$= 1024$$

19. Ans. B

Pointer dereference -> Indirect addressing, E.A = M[Value stored in address field]

Operating with a constant -> Immediate addressing, E.A = Address field of the instruction.

20. Ans. C

TRAP is non maskable Interrupt.

21. Ans. A

Effective Memory Access time: Cache Hit * cache access time + cache miss(cache miss penalty + memory access time)

$$= 0.8(30) + (1-0.8)(30+150)$$

$$= 24 + 0.2(180)$$

$$= 24 + 36$$

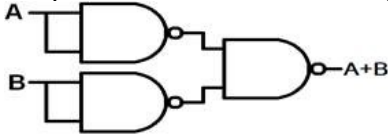
$$= 60ns$$

22. Ans. B

$$\begin{aligned}
 &A. ((a \rightarrow b) \wedge (b \rightarrow c)) \rightarrow (a \rightarrow c) \\
 &\equiv ((\sim a \vee b) \wedge (\sim b \vee c)) \rightarrow (\sim a \vee c) \\
 &\equiv \sim ((\sim a \vee b) \wedge (\sim b \vee c)) \vee (\sim a \vee c) \\
 &\equiv ((a \wedge \sim b) \vee (b \wedge \sim c)) \vee (\sim a \vee c) \\
 &\equiv (\sim a \vee (a \wedge \sim b)) \vee ((b \wedge \sim c) \vee c) \\
 &\equiv ((\sim a \vee a) \wedge (\sim a \vee \sim b)) \vee ((b \vee c) \wedge (\sim c \vee c)) \\
 &\equiv (T \wedge (\sim a \vee \sim b)) \vee ((b \vee c) \wedge T) \\
 &\equiv \sim a \vee (\sim b \vee b) \vee c \\
 &\equiv \sim a \vee T \vee c \\
 &\equiv T
 \end{aligned}$$

23. Ans. C

Only 3 NAND Gate : $A+B = ((A + B)')' = (A' . B')'$



24. Ans. D

for Some values of n perform addition with $2^n - 1$ (largest n- bit binary number) as its both the operands and see if the result you get is of (n+1) bits or not.

25. Ans. D

2-input XOR has high output only when values are different

26. Ans. D

All are advantage of Synchronous Sequential circuits.

27. Ans. B

FDDI is used as transmission in Local area network ,and dual ring which pass through each connected devices.

28. Ans. C

In networking UTP means Unshielded twisted pair

29. Ans. D

default subnet masking for class A networks is 255.255.0.0 for class B.

30. Ans. A

For mesh $n(n-1)/2$ no of cable and Star n-1 cable is required.

31. Ans. D

SMTP means Simple mail transfer Protocol

32. Ans. B

The IEEE 802.11 MAC protocol is carrier sense multiple access protocol with collision avoidance (CSMA/ CA)

33. Ans. D

Runt frame is called for IEEE 802.3 minimum length of 64 octetes.

34. Ans. A

Correct Relation is like

Multicast grup- IGMP, and Interior getway – OSPF, Exterior gateway protocol - BGP, RIP – Distance vector routing.

35. Ans. B

MD5 used 128 bits for has values.

36. Ans. A

internet Protocol security is network protocol suit that authenticates and encrypts the packets of data.

37. Ans. C

PGP use for signing , encryption , and decryption text, email ,file directories.

38. Ans. B

WPA is wi-fi protected access

39. Ans. C

$E = 2.4(KLOC)^{1.05}$ PM Estimation of software development effort for organic software in basic COCOMO.

40. Ans. B

XPath is used for XML doucments.

41. Ans. C

870 due to function overloading concept support in C++. It will call the 2nd square function.

Moreover ,it is passed by reference so $30*29 = 870$ will ans.

42. Ans. D

All ternary operators can' t be overloaded so and is D.

43. Ans. B

UML 2.0 diagrams capture of system

1.Activity dig.

2. Communication Dig

3. Interaction Dig

4. State machine Dig

5. timing Digram

6.Use case

44. Ans. D

All are correct for the object bevaours.

45. Ans. D

RAID 5 used for Distributed parity

46. Ans. A

SATA is know as Serial Advanced Technology Attachment

47. Ans. A

CMM is methodology used for develop and refine an organization's software development process.

48. Ans. C

Deadlock avoidance is solved by Dijkstra banker's algorithm.

49. Ans. A

Answer is 10. All swaps are in following order:

1. 8,7,22,9,31,5,13

2. 8,7,9,22,31,5,13

3. 8,7,9,22,5,31,13

4. 8,7,9,22,5,13,31

5. 7,8,9,22,5,13,31

6. 7,8,9,5,22,13,31

7. 7,8,9,5,13,22,31

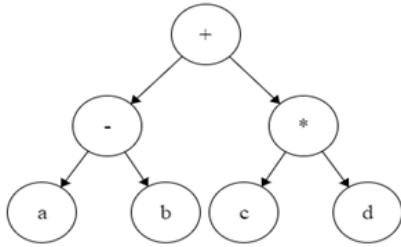
8. 7,8,5,9,13,22,31

9. 7,5,8,9,13,22,31

10. 5,7,8,9,13,22,31

50. Ans. A

here the solution image and the Sequenc of operator and oprand



51. Ans. A

Child process will execute next instruction i.e. a++ because in child process if-condition is not tested. Execution starts from next instruction. So it will print 11

52. Ans. A

By using three frames total no of 7 fault will occur.

53. Ans. D

Ans Is D Bcz it is not given that where are we going to insert the node in linked list.so it's Depends upon the nodes of the doubly linked list

54. Ans. D

We can swap (x,y) because it is pass values function call which will not swap the values.

55. Ans. C

A function that takes an integer as argument and returns an integer pointer

56. Ans. B

A mutual exclusion (mutex) is a program object that prevents simultaneous access to a shared resource. This concept is used in concurrent programming with a critical section, a piece of code in which processes or threads access a shared resource.

57. Ans. B

$(1217)_8 = (001\ 010\ 001\ 111)_8 = (0010\ 1000\ 1111) = (28F)_{16}$

58. Ans. D

Capability Maturity Model because CMM is not a software life cycle model. Instead, it is a strategy for improving the software process

59. Ans. B

Stack is a straightforward choice for checking if left and right parentheses are balanced

60. Ans. B

Cyclomatic Complexity of module = Number of decision points + 1

Number of decision points in A = $10 - 1 = 9$

Number of decision points in B = $10 - 1 = 9$

Cyclomatic Complexity of the integration = Number of decision points + 1

= $(9 + 9) + 1$

= 19

61. Ans. C

software maintenance tackling the changes in the hardware or software environment where the software works, is Adaptive maintenance.

62. Ans. B

For every time loop condition check with outer declare i and dor every outer declared i every time new variable i is declared and assign 10 to it . so output will be 10, 10, 10, 10, 10,

63. Ans. C

The program **prints binary equivalent of num.**

Above task can also be performed using the following program:

```
#include <stdio.h>
int main() {
    unsigned short int num;
    int i;
    scanf("%u",&num);
    for(i=15;i>=0;i--)
        (num&(1<<i))?printf("1"):printf("0");
}
```

64. Ans. B

Here we solved as

```
#include<stdio.h>
int tmp=20;
main()
{
    printf("%d", tmp); -----
    Line:1
    func();----- Line:2
    printf("%d", tmp);-----
    Line:3
}
func()..... Line:4
{
    static int tmp=10;-----
    Line:5
    printf("%d", tmp);-----
    Line:6
}
```

Since tmp is a global variable. So, line: 1 will print 20.

then on calling the function "**func()**" in Line:2,

control of program will go to Line 4 then under which new local variable "**tmp=10**" is defined statically, So, on executing line:6 gives output 10

On executing Line: 3, again global variable comes into the picture, Since C language follows static scoping so free variable refers to global variable. so it prints value:20

so final output will be : 20 10 20

option B will be correct.

65. Ans. D

This is a measure of the average length of words and sentences in documents. The higher the value of a document's Fog index. the more difficult the document is to understand

66. Ans. B

So cylinders are accessed in following order 34, 20, 19, 15, 10, 7, 6, 4, 2, 73 and total time will be $(16 + 14 + 1 + 4 + 5 + 3 + 1 + 2 + 2 + 71)*1 = 119$ ms.

67. Ans. A

all nodes are completely full means every node has $n-1$ keys. tree has 4 levels if a new key is inserted then at every level there will be created a new node. and in worst case root node will also be broken into two parts. and we have 4 levels so answer should be 5 because tree will be increased with one more level

68. Ans. A

critical region is a piece of code which only one process executes at a time.

69. Ans. A

$$(a + (b - c)) * ((d - e) / (f + g - h))$$

$$(a + (b - c)) * ((-de) / ((+fg) - h))$$

$$(a + (-bc)) * ((-de) / (- + fgh))$$

$$(+ a - bc) * (/ - de - + fgh)$$

$$* + a - bc / - de - + fgh$$

70. Ans. A

Malloc is used for Dynamic memory allocation.

71. Ans. D

$$10 + 2V - 5P = 7$$

72. Ans. C

mknod myfifo b 4 16 this linux command is used for create a block device if the user is root.

73. Ans. A

A hard real time OS HAS less has less jitter than a soft real- time operating system.

74. Ans. B

The Throwable class is the superclass of all errors and exceptions in the java language.

75. Ans. D

= this define unordered list without number.

 = ordered list with number

<dl>= Define description list.

76. Ans. D

Floyd warshalls algorithm is based on dynamic paradigm approach is used to solve All pair shortest path problem.

77. Ans. D

Set difference = $L - P = L \text{ intersction } P^C$. since recursively enumerable language are not closed.

78. Ans. B

High cohesion and low coupling is ideal software design less interaction between modules so that any module can be easily modified .

79. Ans. D

Lexical Analyzer is take the source code as input and produces as Stream of tokens as output.

80. Ans. C

Then the following is the $O(V^3)$ Warshall's Algorithm to find the Transitive closure of the underlying graph or binary relation.
