

1. What is output of following code in C?

```
#include <stdio.h>
int f1(char *str1)
{
    char *str2 = str1;
    while (*++str1)
        ;
    return (str1 - str2);
}
int main()
{
    char *str = "MCAfromPU";
    printf("%d", f1(str));
    return 0;
}
```

- (A) 8 (B) 9 (C) 10 (D) 7

2. What is output of following code in C?

```
#include <stdio.h>
int main()
{
    int x, y = 50, z = 50;
    x = y == z;
    printf("%d", x);
    return 0;
}
```

- (A) error (B) 0 (C) 50 (D) 1

3. What is output of following code in C?

```
#include <stdio.h>
int main()
{
    int i = 5;
    printf("%d", (++i)++);
    return 0;
}
```

- (A) 6 (B) 7 (C) error (D) 5

4. What is output of following code in C?

```
#include <stdio.h>
int main() {
    int i;
    if (printf("1"))
        i = 1;
    else
        i = 2;
    printf("%d", i++);
    return 0;
}
```

- (A) 11 (B) 12 (C) 22 (D) 23

5. Find the correct option for:

```
int (*p)[9];
```

- (A) A ragged array (B) An array "p" of pointers
(C) A pointer "p" to an array (D) None of the above

6. What is output of following code in C?

```
#include <stdio.h>
int main() {
    printf("%d",5^5);
    return 0;
}
```

- (A) 1 (B) 0 (C) 3125 (D) 625

7. What is output of following code in C?

```
#include <stdio.h>
int main() {
    int x = 5 * 16 / 5 + 9;
    printf("%d",x);
    return 0;
}
```

- (A) 61 (B) 5 (C) 24 (D) 25

8. What is output of following code in C?

```
#include <stdio.h>
int main()
{
    short int i = 20;
    char c = 97;
    printf("%d, %d, %d\n", sizeof(i), sizeof(c),
    sizeof(c+i));
    return 0;
}
```

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

9. What is output of following code in C?

```
#include <stdio.h>
int main()
{
    short int i=0;
    while (i < 5){
        printf("%d",i);
        i++;
    }
    printf("%d",i);
}
```

- (A) 01234 (B) 123456 (C) 012345 (D) 12345

10. What is output of following code in C?

```
#include<stdio.h>
int main(void)
{
    int a = 5;
    int b = 5;
    b = ++a + ++a;
    printf("%d %d",a,b);
    return 0;
}
```

- (A) 7,14 (B) 6,13 (C) 7,13 (D) 6,14

11. Last-in-first-out and first-in-first-out closely related to,

- (A) stack, queue (B) queue, stack (C) queue (D) stack

12. A function calls itself happens in _____

- (A) nested function (B) cascaded function
(C) recursion (D) call-by-value

13. In the worst-case scenario, recursive binary search on a sorted array of size n performs _____ arithmetic operations.

- (A) $O(n)$ (B) $O(\log n)$ (C) $O(2^n)$ (D) $O(\frac{n}{2})$

14. The average depth of a binary search tree of n nodes is:

- (A) $O(n \log n)$ (B) $O(\log n / 2)$ (C) $O(n)$ (D) $O(\log n)$

15. What is worst time complexity of $f(n)$, $n > 1$, where $f(n) = n^3 + n^2 + n + 5$

- (A) $O(n)$ (B) $O(n^3)$ (C) $O(n^5)$ (D) $O(n^6)$

16. Wrapping data and its related functionality into a single entity is known as _____
 (A) Abstraction (B) Encapsulation (C) Polymorphism (D) Modularity
17. Which concept allows you to reuse the written code?
 (A) Encapsulation (B) Abstraction (C) Inheritance (D) Polymorphism
18. The feature by which one object can interact with another object is _____
 (A) Message reading (B) Message Passing
 (C) Data transfer (D) Data Binding
19. The copy constructors can be used to _____
 (A) Copy an object so that it can be passed to another primitive type variable
 (B) Copy an object for type casting
 (C) Copy an object so that it can be passed to a function
 (D) Copy an object so that it can be passed to a class
20. The destructor automatically called when object is _____
 (A) copied (B) transferred (C) initialized (D) destroyed
21. Which type of members can't be accessed in derived classes of a base class?
 (A) Private and Protected (B) Protected
 (C) Private (D) Public
22. Full form of SMTP in computer networks is _____
 (A) Simple Mail Transfer Processing (B) Single Mail Transfer Protocol
 (C) Simple Mail Transfer Protocol (D) Simple Merge Transfer Protocol
23. Full form of SSL in computer networks is _____
 (A) Secure Service Layer (B) Secure Sockets Layer
 (C) Shell Sockets Layer (D) Secure Sockets Levels
24. Full form of TCP in computer networks is _____
 (A) Transmission Control Protocol (B) Transfer Control Protocol
 (C) Transmission Connect Protocol (D) Transfer Connect Protocol
25. In networking, UTP stands for,
 (A) Universal Twisted Pair (B) Unshielded Transfer Pair
 (C) Unified Twisted pair (D) Unshielded Twisted Pair
26. Firewall monitors and controls _____
 (A) Screen time (B) Computation time
 (C) Incoming and outgoing traffic (D) CPU usage
27. DDL in DBMS refers to _____
 (A) Data Definition Logics (B) Data Definition Language
 (C) Data Distributed Language (D) Distributed Definition Language
28. A view of database that appears to an application program is known as
 (A) Schema (B) Subschema (C) Virtual table (D) Index Table

29. The ability to change the conceptual schema without affecting the external schemas or application programs is known as _____.
- (A) Program Data Independence (B) Logical Schema Conversion
(C) Physical Data Conversion (D) Logical Data Independence
30. Which level of abstraction describe how data are actually stored?
- (A) Physical (B) Logical (C) External (D) View
31. Conceptual level is also known as _____
- (A) Physical Level (B) View level (C) Network level (D) Logical level
32. The first generation of computers used which technology?
- (A) Transistors (B) Vacuum tubes
(C) Integrated circuits (D) Microprocessors
33. What does BIOS stands for?
- (A) Basic Input Output System (B) Binary Input Output System
(C) Basic Integrated Operating System (D) Binary Integrated Operating System
34. Which of the following is classified as volatile memory?
- (A) ROM (B) Flash Memory (C) RAM (D) Hard Drive
35. EBCDIC is one of the popular character coding systems. What does EBCDIC stand for?
- (A) Extended Binary Coded Decimal Interchange Code
(B) Extended Bit Code Decimal Interchange Code
(C) Extended Bit Case Decimal Interchange Code
(D) Extended Binary Case Decimal Interchange Code
36. The term gigabyte refers to,
- (A) One terabytes (B) 1024 kilobytes
(C) 1024 megabytes (D) 2048 megabyte
37. The binary number 1110 in hexadecimal format is _____
- (A) D (B) E (C) 14 (D) 15
38. The hexadecimal equivalent of the binary number $(0010010100)_2$ is :
- (A) $(094)_{16}$ (B) $(0A4)_{16}$ (C) 224 (D) 0114
39. URL stands for _____
- (A) Uniform Resource Link (B) Universal Resource Locator
(C) Universal Resource Link (D) Uniform Resource Locator
40. Apache is a type of _____
- (A) DBMS (B) Web Server
(C) Web Browser (D) Scripting Language
41. Which of the following is not a software process model?
- (A) Waterfall Model (B) Spiral Model
(C) Agile Model (D) Compile Model

42. In the software development life cycle (SDLC), what is the first step?
 (A) Design (B) Testing (C) Requirement Analysis (D) Coding
43. The minimum number of edges required to connect n vertices in a tree is:
 (A) n (B) $n - 1$ (C) $n + 1$ (D) $\log n$
44. Which of the following is NOT an output device?
 (A) Keyboard (B) Printer (C) Monitor (D) Speaker
45. Which memory is volatile and gets erased when the computer is turned off?
 (A) ROM (B) Hard Drive (C) SSD (D) RAM
46. If $f(x) = 1 - \frac{1}{x}$, then $f\left(f\left(\frac{1}{x}\right)\right)$ is,
 (A) $\frac{x}{1-x}$ (B) $\frac{1}{x-1}$ (C) $-\frac{x}{x-1}$ (D) $\frac{x}{x-1}$
47. The value of $\sin^{-1}\left(\cos\frac{3\pi}{5}\right)$ is,
 (A) $\frac{3\pi}{5}$ (B) $\frac{\pi}{10}$ (C) $-\frac{3\pi}{5}$ (D) $-\frac{\pi}{10}$
48. If $A = \begin{bmatrix} 3 & x-1 \\ 2x+3 & x+2 \end{bmatrix}$ is a symmetric matrix, then value of x is,
 (A) 4 (B) -3 (C) -4 (D) 2
49. If $\begin{vmatrix} 2 & 3 & 2 \\ x & x & x \\ 4 & 9 & 1 \end{vmatrix} + 3 = 0$, then the value of x is,
 (A) 2 (B) -1 (C) $-\frac{3}{17}$ (D) $\frac{3}{17}$
50. If $y = \log(\sqrt{\tan x})$, then value of $\frac{dy}{dx}$ at $x = \frac{\pi}{4}$ is,
 (A) -1 (B) $\frac{1}{2}$ (C) 1 (D) 0
51. The value of $\int \frac{dx}{e^x + e^{-x}}$ is equals to,
 (A) $\tan^{-1}(e^x) + C$ (B) $\tan^{-1}(e^{-x}) + C$
 (C) $\log(e^x + e^{-x}) + C$ (D) $\log(e^x - e^{-x}) + C$
52. If A and B are two events such that $P(A) \neq 0$ and $P(B|A) = 1$, then
 (A) $P(B) = 0.5$ (B) $P(A) = 0.5$ (C) $B \subset A$ (D) $A \subset B$
53. If $P(A) = 0.4$, $P(B) = 0.8$ and $P(B|A) = 0.6$, then $P(A \cup B)$ is equals to,
 (A) 0.24 (B) 0.48 (C) 0.96 (D) 1
54. For any natural number n , $7^n - 2^n$ is divisible by
 (A) 7 (B) 5 (C) 3 (D) 9
55. The value of $5\sqrt{-25} + 2\sqrt{-4} + 3\sqrt{-9}$ is
 (A) $10\sqrt{10}i$ (B) $\sqrt{38}i$ (C) $-38i$ (D) $38i$

56. It is required to seat 5 men and 4 women in a row so that women occupy the even places. The number of ways such arrangements are possible in _____
 (A) 2880 (B) 120 (C) 480 (D) 2800
57. If ${}^nC_2 = {}^nC_3$, then value of n is,
 (A) 10 (B) 3 (C) 5 (D) -5
58. The equation of line joining (3, 4) and (5, 8) is,
 (A) $y = 2x + 2$ (B) $y = 2x - 2$ (C) $y = 2x$ (D) $y = 2x - 4$
59. The derivative of e^{x^2} is,
 (A) $x^2 e^{x^2}$ (B) e^{x^2} (C) $x e^{x^2}$ (D) $2x e^{x^2}$
60. If $\tan A = 1/2$ and $\tan B = 1/3$, then the value of $A + B$ is,
 (A) $-\frac{\pi}{4}$ (B) 1 (C) $\frac{\pi}{4}$ (D) 0
61. A can do a work in 15 days and B in 20 days. If they work on it together for 4 days, then the fraction of the work that is left is _____
 (A) $\frac{8}{15}$ (B) $\frac{7}{15}$ (C) $\frac{7}{60}$ (D) $\frac{53}{60}$
62. A father said to his son, "I was as old as you are at the present at the time of your birth". If the father's age is 38 years now, the son's age five years back was _____ years.
 (A) 19 (B) 15 (C) 16 (D) 14
63. The compound interest on Rs. 30,000 at 7% per annum is Rs. 4347. The period (in years) is _____
 (A) 4 (B) 3 (C) 2 (D) 5
64. Find the odd one out: Circle, Cube, Rectangle, Triangle
 (A) Circle (B) Cube (C) Rectangle (D) Triangle
65. A train 150 meters long passes a pole in 15 seconds. What is its speed?
 (A) 10 km/h (B) 18 km/h (C) 36 km/h (D) 6 km/h
66. What comes next in the series: A, C, F, J, O, _____
 (A) W (B) V (C) U (D) T
67. Which is heavier: 1 kg of cotton or 1 kg of iron?
 (A) Iron (B) Cotton (C) Equal (D) Can't say
68. The angle of elevation of a ladder leaning against a wall is 60° and the foot of the ladder is 4.6 meters away from the wall. The length of the ladder is _____ meters.
 (A) 9.2 (B) 2.3 (C) $4.6\sqrt{2}$ (D) 4.6
69. Find the correct option for:
 Assertion (A): Sound cannot travel in a vacuum.
 Reason (R): Sound requires a medium for its propagation.
 (A) Both A and R are true, and R is the correct explanation of A.
 (B) Both A and R are true, but R is not the correct explanation of A.
 (C) A is true, but R is false.
 (D) A is false, but R is true.

70. Find the correct option for:
Assertion (A): All rectangles are squares.
Reason (R): All squares are rectangles.
(A) Both A and R are true, and R is the correct explanation of A.
(B) Both A and R are true, but R is not the correct explanation of A.
(C) A is true, but R is false.
(D) A is false, but R is true.
71. If January 7, 2025 is a Tuesday, then what is day of the week on January 27, 2025?
(A) Sunday (B) Monday (C) Tuesday (D) Wednesday
72. The average marks of 15 papers is 42. The average marks of first 8 papers is 45 and average marks of last 8 papers is 36. What are marks of 8th paper?
(A) 6 (B) 20 (C) 18 (D) 12
73. Find a single discount on series of discounts 5%, 15% and 25%.
(A) 20% (B) 36.44% (C) 39.44% (D) 42.44%
74. Introducing a boy, a girl said, "He is the son of the daughter of the father of my uncle." How is the boy related to the girl?
(A) Nephew (B) Brother-in-law (C) Uncle (D) Brother
75. In a family of 10 members, 7 of them like tea or coffee, 4 of them like tea and 5 of them like coffee. How many of them like neither tea nor coffee?
(A) 3 (B) 4 (C) 2 (D) 5

x-x-x

(ROUGH WORK)

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