Computer Science Exam - 2025

Full Marks: 80
Pass Marks: 20
Time: Three hours

Instructions:

Attempt all questions.
The figures in the right-hand margin indicate full marks for the corresponding questions.

Questions:

1. What does definiteness mean in the context of algorithms? **(1 mark)**
2. Define a constant in C? **(1 mark)**
3. What is the primary purpose of the `atoi()` function? **(1 mark)**
4. How do you call a function in C? **(1 mark)**
5. Declare a structure `Data` that can store an integer and a character. **(1 mark)**
6. Which attribute of the `<form>` tag specifies the URL where the form data should be submitted? **(1 mark)**
7. Write an algorithm to find the smallest of three numbers. **(2 marks)**
8. Write the format specifiers used in C for the following types: **(2 marks)**
   - (A) Floating point in decimal or exponential form
   - (B) Unsigned decimal integer
   - (C) Unsigned octal integer
   - (D) Unsigned hexadecimal integer
9. Draw the output of the following code: **(2 marks)**

```c
#include <stdio.h>
int main() {
    int i, j;
    printf("**********\n");
    for (i = 1; i <= 4; ++i) {
            for (j = 1; j <= 2 * i - 1;j +=2) {
                    printf("%d, j");
            }
            printf("\n");
    }
   return 0;
}
```

10. What do the following string functions in C do? **(1 + 1 = 2 marks)**
    (a) `strupr()`
    (b) `stricat()`
11. State two uses of recursive function. **(2 marks)**
12. Why and how do we insert comments in HTML? **(2 marks)**
13. Draw the output of the following code: **(2 marks)**

```html
<html>
<body>
<p>
<u>Water molecule</u>: H<sub>2</sub>O</br>
<u>Mathematical eqn.</u>:E= mc<sup>2</sup></br>
</p>
</body>
</html>
```

14. Draw a flowchart to find the factorial of a number. Ensure that negative values are rejected with the message "Invalid input." **(3 marks)**

15. Describe the function of the three logical operators in C. **(3 marks)**
16. State three points of differences between an array and a union in C. **(3 marks)**
17. Explain what the following code does and predict the output: **(3 marks)**

```
int a = 5, b = 10;
int *p1 = &a, *p2 = &b;
int sum = *p1 + *p2;
printf("Sum = %d\n", sum);
```

18. What are the attributes of the `<img>` tag, and what do they represent? **(3 marks)**
19. Write a brief note on `gets()` and `getchar()`. Using a suitable example explain how `getchar()` can be used to read strings with whitepaces. **(2 + 2 =4 marks)**
20. (a) What happens to a variable when it is passed to a function using pass-by-value in C?
    (b) Write the function prototype of the following functions:
    (i) average : accepts three real numbers and return their average
    (ii) sayHello : accepts a string and returns no value
    (iii) getPi : does not accept any parameter but returns a real number **(1 + 3 =4 marks)**
21. List any four attributes of the `<hr>` and state their purpose. **(4 marks)**
22. Differentiate the followings: **(3+1=4 marks)**
    (a) `<p>` and `<br>`
    (b) cellspacing and cellpadding
23. Describe the html tag used for creating hyperlinks and explain its key attributes. **(1+3=4 marks)**
24. Write a C program that generates the Fibonacci series up to the Nth term, handling negative input values appropriately. **(5 marks)**
25. Write a C program to perform a linear search on an array, where the user inputs the array elements and the element to be searched **(5 marks)**
26. Write a C program to find the transpose of a square matrix, taking the matrix elements as user input and displaying the transpose in proper matrix format. **(5 marks)**
27. Write HTML code to create a web page that replicates the specified layout and style, ensuring your code accurately reflects the described structure and appearance. **(5 marks)**

Scheme of Studies

• Subjects of Studies

C. First language

- Manipuri
- Assamese

D. Second language

- English

Science

2. Chemistry

3. Biology

   i. Botany
   ii. Zoology

28. Write HTML code to create a webpage that includes a table displaying the schedule of classes and links to relevant resources. **(5 marks)**

Class Schedule

Class	Time	Resources
Mathematics	09:00 AM – 10:30 AM	[Math Resources](https://example.com/math-resources)
Science	11:00 AM – 12:30 PM	[Science Resources](https://example.com/science-resources)
History	01:00 PM – 02:30 PM	[History Resources](https://example.com/history-resources)

Instructions:

1. Set the title of the HTML page to **"Class Schedule."**
2. Include a main heading with the text **"Class Schedule"** at the top of the page.
3. Ensure the table has visible borders for all cells and add padding of **10** to all table cells.
4. Set **'Class', 'Time',** and **'Resources'** as table headers.
5. Set **green color** for the table headers.
6. Create clickable links for:
   - **Math Resources** → https://example.com/math-resources
   - **Science Resources** → https://example.com/science-resources
   - **History Resources** → https://example.com/history-resources