

**ARYA COLLEGE OF ENGINEERING  
GUESS PAPER**

**(B.Tech. I Semester 2025-2026)**

**1FY3\_06 PROGRAMMING FOR PROBLEM SOLVING  
(PPS)**

**UNIT-1**

**Short Answers: (2MarksEach)**

- Q. 1** Compare compiler and interpreter and Assembler.
- Q. 2** Compare SRAM and DRAM.
- Q. 3** Differentiate between primary and secondary memory. What are the different kinds of memory
- Q. 4** What is computer? What are its various operations and applications?
- Q. 5** What is pseudo code? Write pseudo code/ flowchart to check if a number is even or not.
- Q. 6** Describe the purpose of random, direct, and sequential access methods in storage devices.
- Q. 7** Compare high-level languages and low-level languages. Provide examples.

**Descriptive Answers: (4 to 10Marks)**

- Q. 1** Classify the types of languages of computer.
- Q. 2** Explain RAM, ROM and cache memory.
- Q. 3** Draw and explain flowchart to check if a number is prime or not.
- Q. 4** Explain secondary storage devices and its types
- Q. 5** Explain Stored Program Architecture with a neat diagram
- Q. 6** Differentiate between Primary and Secondary Memory with examples.
- Q. 7** What is flow chart explain all symbols of flow chart?

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**Unit-2**

**Short Answers: (2MarksEach)**

- Q. 1** What is type casting? Explain with example
- Q. 2** WAP to swap two numbers.
- Q. 3** What is scope of a variable?
- Q. 4** What are macros? Give example
- Q. 5** Elaborate data types, variables and constants.
- Q. 6** What is typedef and enum data type?.

**Descriptive Answers: (4 to 10Marks)**

- Q. 1** Explain formatted and unformatted I/O with example.
- Q. 2** What is a preprocessor? What are its directives?
- Q. 3** Describe various operators in C.
- Q. 4** What is the structure of a C program explain all?

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**Unit-3**

**Short Answers: (2MarksEach)**

- Q. 1** Write about switch case decision making statement with syntax.
- Q. 2** Explain break, continue and goto statements.
- Q. 3** Write a program factorial of a number?
- Q. 4** Define arrays and its types with syntax.
- Q. 5** WAP to check if a number is palindrome or not
- Q. 6** What is for loop? Explain with syntax with example?

**Descriptive Answers: (4 to 10Marks)**

- Q. 1** WAP to find largest and smallest value in an array of 10 elements.
- Q. 2** WAP to pass a matrix to a function as argument and display it in that function.
- Q. 3** Describe iterative statements with example.
- Q. 4** Write the difference between for while and do while loop?
- Q. 5** What is an Array and explain types of Array(1D,2D Array)?

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**Unit-4**

**Short Answers: (2MarksEach)**

- Q. 1** Structures are heterogeneous and user defined. How?
- Q. 2** How to access members of structure? Explain with example.
- Q. 3** What is a file? Explain its types.
- Q. 4** What are the various modes of file?
- Q. 5** What is pointer in C.
- Q. 6** What is use of arrow operator.
- Q. 7** What is void and double pointer.
- Q. 8** What is actual and formal parameters in function?
- Q. 9** What is recursion. Explain advantage of recursion?

**Descriptive Answers: (4 to 10Marks)**

- Q. 1** Write a program to explain array of structure in detail.
- Q. 2** How are pointers and array related? Explain
- Q. 3** Discuss pointer to structure with example.
- Q. 4** WAP to create a structure, read student details and print them.
- Q. 5** Explain File handling Functions.
- Q. 6** Explain call by value and call by reference with suitable examples.
- Q. 7** What are functions? Explain its categories.
- Q. 8** Write a C program to copy the content of one file to another

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**Unit-5**

**Short Answers: (2MarksEach)**

- Q. 1** What are character codes?
- Q. 2** What are the most common system/ways to represent numbers? Discuss.
- Q. 3** Perform:  $(1011)_2 + (0011)_2$
- Q. 4** What is radix?
- Q. 5** What is one's complement of a binary number?
- Q. 6** Represent the name "RAM" in ASCII values.

**Descriptive Answers: (4 to 10Marks)**

- Q. 1** Explain BCD and EBCDIC.
- Q. 2** Explain ASCII.
- Q. 3** Calculate r and r-1 complement of:  $(24222)_{10}$
- Q. 4** Convert:  $(10100111)_2 = (?)_{16}$
- Q. 5** Convert:  $(534.22)_{10} = (?)_2$
- Q. 6** Perform binary additions:
  - a)  $10110 + 1101$
  - b)  $11101 + 1011$

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**Programs**

1. Develop a program to find the largest of three numbers using a nested if statement.
2. Write a program to generate all prime numbers between 1 and 100 using a while loop.
3. Develop a program to calculate the sum of digits of a number using a do-while loop.
4. Create a program that reverses a given integer and checks if it is a palindrome using a while loop.
5. Write a program to print Fibonacci numbers up to n terms using a nested for loop.
6. Define arrays in C. Write a program to find the maximum and minimum element in an array.
7. Write a program to add two matrices of size 3x3.
8. Develop a program to sort an array in ascending order using the bubble sort algorithm.
9. Write a program to search for a given number in an array using the linear search algorithm.
10. Write a function to calculate the factorial of a number using recursion.
11. Write a program to find the sum of elements in an array using a function.

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**12. Write a program to create a structure for a student (roll number, name, marks in 5 subjects) and calculate the total marks and percentage of the student.**

**13. Develop a program to count the number of characters, words, and lines in a given text file.**

**14. Write a C program that reads a text file and counts the number of characters, words, and lines in it.**

**15. Write a C program to copy the contents of one file to another.**

**16. Write a C program to print the following pattern.**

**1.**

```
*  
**  
***  
****  
*****
```

**2.**

```
1  
12  
123  
1234  
12345
```

**3.**

```
A  
B B  
C C C  
D D D D  
E E E E E
```

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4.

1  
2 3  
4 5 6  
7 8 9 10

5.

1 2 3 4 5  
1 2 3 4  
1 2 3  
1 2  
1