

BIM/ First Semester/ IT 232: C Programming

Candidates are required to give their answers in their own words as far as practicable.

Group A

Short Answer Questions:

[10x1=10]

1. Write differences between if and switch.

Answer: if: i) it can take expression of any type.

ii) it can perform all comparisons.

iii) case keyword is not used.

iv) break keyword is not used.

switch: i) It can take any integer and character expression

ii) It can perform only equality comparisons.

iii) case keyword is used

iv) break keyword is used

2. What is the use of break in switch?

Answer: The use of break in switch is to terminate the switch block after the particular case is executed to prevent the execution of subsequent cases.

3. Define literal.

Answer: Literals are the constant values used in a program. The types of literals are Integer Literal, Floating point Literal, Character Literal and String Literal.

4. What is a language translator?

Answer: Language translator is a utility application that is used to convert programs written in Assembly or High Level Language into machine level language. The types of Language Translators include Assembler, Compiler, and Interpreter.

5. Write down the use of sizeof() operator.

Answer: The use of sizeof() operator is to determine the size of a data type, variable or expressions.

6. Name any two functions defined under math.h header file and write down their use.

Answer: The two functions defined under math.h header file are :

a) sqrt() : This function is used to calculate square root of the given number.

b) pow() : This function is used to calculate the power of a given base raised to the exponent.

7. Differentiate between puts() and printf().
Answer: puts(): i) It can print only string output.
ii) It automatically breaks line.
printf(): i) It can print formatted output.
ii) It doesn't break the line.
8. Why a++ executes faster than a=a+1?
Answer: a++ executes faster than a=a+1 because a++ is a single operation while a=a+1 involves an addition and assignment operation.
9. Write a printf statement to print the output: "Welcome" inside double quotes.
Answer: printf("\"Welcome\"");
10. Write down the output of printf("BOOK\b\bLD");
Answer: BOLD

Group B

Exercise Problems:

[5x3=15]

11. Write a program to input two integers and perform addition and multiplication.

Source Code:

```
#include<stdio.h>
int main()
{
    int a,b,add,mul;
    printf("Enter any two integers :");
    scanf("%d%d",&a,&b);
    add=a+b;
    mul=a*b;
    printf("\n Addition is : %d",add);
    printf("\n Multiplication is : %d",mul);
    return 0;
}
```

12. Write a program to input a character and check whether it is vowel or consonant.

Source Code:

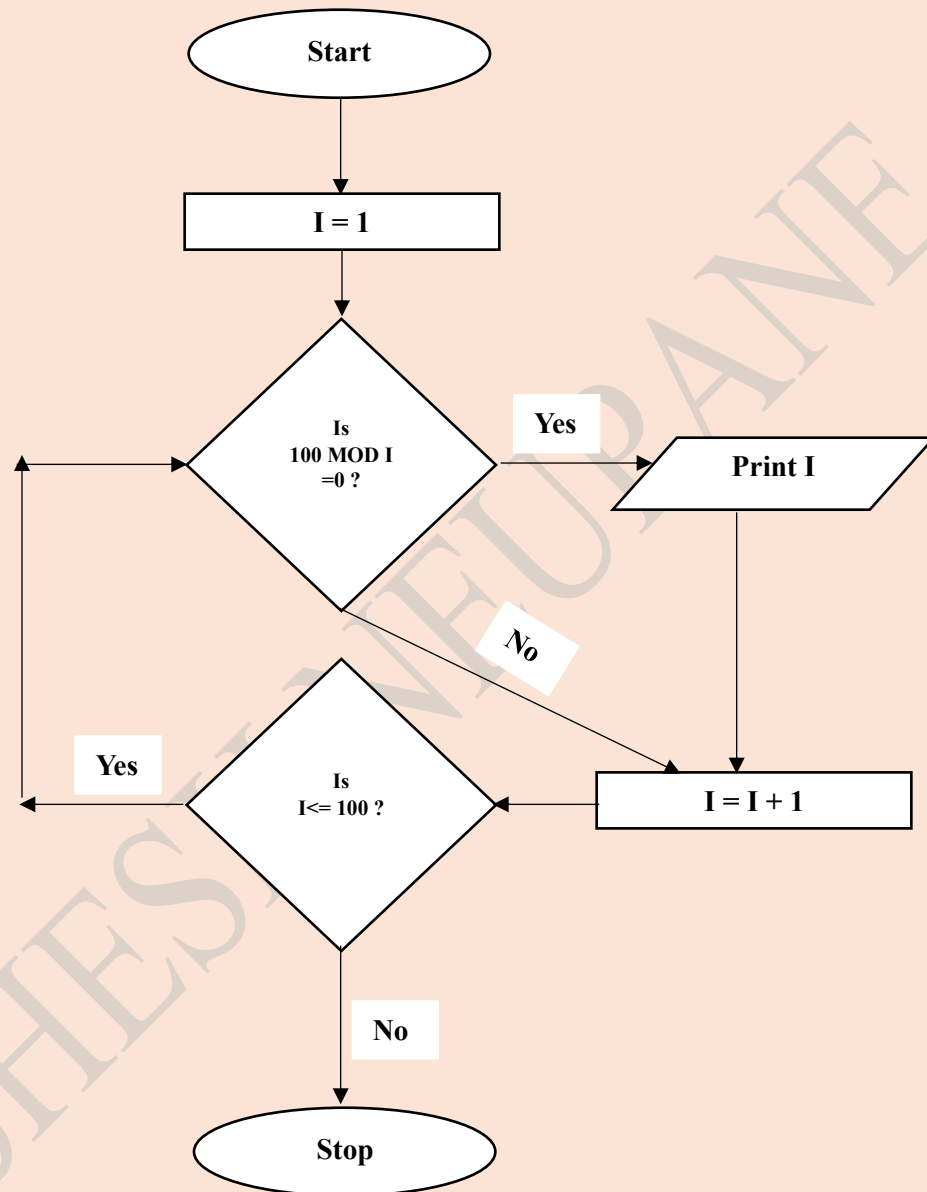
```
#include<stdio.h>
int main()
{
    int a;
    printf("Enter a character :");
    scanf("%c",&a);
    switch(a)
    {
        case 'a':
        case 'e':
        case 'i':
        case 'o':
        case 'u':
        case 'A':
        case 'E':
        case 'I':
        case 'O':
        case 'U':
            printf("Vowel");
            break;
        default: printf("Consonant");
    }
    return 0;
}
```

13. Write a program to input a number and find its factorial.

Source Code:

```
#include<stdio.h>
int main()
{
    int i,fact=1,n;
    printf("Enter a number :");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        fact=i*fact;
    }
    printf("The factorial of the given number is : %d",fact);
    return 0;
}
```

14. Draw a flowchart to print all factors of 100.



15. Write a program to display the following series:

1 3 7 15 31 up to 15th term.

Source Code

```
#include<stdio.h>

int main()
{
    int i,a=1,d=2;
    for(i=1;i<=15;i++)
    {
        printf("%d ",a);
        a=a+d;
        d=d*2;
    }
    return 0;
}
```

Group C

Comprehensive Answer Questions:

[3x5=15]

16. What is a loop? What are the different types of loop? Write a program to find sum of first N natural numbers.

Answer:

(Part-I)

A loop is a set of instructions that gets executed repeatedly until the specified condition becomes false. There are 3 types of loop : for loop, while loop and do while loop.

(Part-II)

Source Code:

```
#include<stdio.h>
int main()
{
    int i,n,sum=0;
    printf("Enter the value of n:");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        sum=sum+i;
    }
    printf("The sum is : %d",sum);
    return 0;
}
```

17. Explain the different types of tokens available in C language.

Answer:

A token is the smallest individual unit of code that can be compiled by the compiler. The different types of token are explained below:

- 1) Comment:** It is used to improve the readability of code. It does not affect the output as they are ignored by the compiler. There are two types of comment i.e. single line comment (`//`) and multi line comment (`/* */`).
- 2) Separator/Punctuator:** Punctuators are special characters used for punctuation or separation of different parts of a C program. Examples include braces `{}`, parentheses `()`, square brackets `[]`, commas, semicolons `;` etc.
- 3) White Space:** space, tab, line feed.
- 4) Keywords (Reserved Words):** These are the words which have their own special purpose. Examl : `int`, `float`, `char`, `break`, `continue`, `for`, `if` etc.
- 5) Literals:** Literals are the constant values used in a program. Types of literals include Integer Literal, Floating point literal, character literal and string literal.
- 6) Identifier:** Identifiers refers to the name of the variable, fuction or array.
- 7) Operators:** An operator is a symbol used for mathematical and logical calculations. Types of operators include Arithmetic Operators, Logical Operators, Comparison / Relational Operators, Arithmetic Assignment Operators, Unary Operators, Conditional / Ternary Operator and other operators such as dot operator and size of operator.

18. Create the following menu driven program:

1. Check odd even.
 2. Display Even Numbers 1 to 50.
- Enter your choice:

Source Code:

```
#include<stdio.h>
int main()
{
    int n,i,choice;
    printf("1. Check Odd Even \n 2. Display Even Numbers 1 to 50");
    printf("\n Enter your choice :");
    scanf("%d",&choice);
    switch(choice)
    {
        case 1:
            printf("\nEnter any number:");
            scanf("%d",&n);
            if(n%2==0)
            {
                printf("Even");
            }
            else
            {
                printf("Odd");
            }
            break;
        case 2:
            for(i=1;i<=50;i++)
            {
```

```
    if(i%2==0)
    {
        printf("%d ",i);
    }
}
break;
default: printf("Invalid Input ! Enter again");
}
return 0;
}
```

*****The End*****