First Internal Assessment, 2024 (Solution | Set B)

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 a printf statement to display NEPAL\TU\SDC.
   Answer: printf("NEPAL\\TU\\SDC");

2. What is an identifier ?
   Answer: An identifier, a type of token is the name of the function, variable or array. For example : int **a**,**b**,**c**; Here, a, b and c are identifiers.

3. Mention the use of ?: operator.
   Answer: The use of ?: operator is to check the condition. For example : (n%2==0)? printf("Even"):printf("Odd");

4. Define header file.
   Answer: Header file is the file having .h extension containing the library functions used by the programmers to create their own programs.

5. Why p++ executes faster than p=p+1?
   Answer: p++ executes faster than p=p+1 because p++ is a single operation while p=p+1 involves an addition and assignment operation.

6. Differentiate between scanf and getch.
   Answer: 1) **scanf():** i) It accepts all types of input
   ii) Format specifier is required
   2) **getch():** i) It accepts only single character input
   ii) Format specifier is not required.

7. What is a token?
   Answer: A token is a small individual unit of code that can be compiled by the compiler. Some types of token are: keywords, identifier, literals etc.

8. What are the member access operators in C?
   Answer: The member access operator in C are dot operator and the arrow operator.

9. What are the uses of \b and \r?

   Answer: The use of \b (backspace) is to move the cursor 1 step back and \r (carriage return) is to move the cursor to the beginning of the line.

10. Write down the output of printf(“Lion\b\bar”);

    Answer: Liar

Group B

Exercise Problems: **[5x3=15]**

11. Write a program to input 3 numbers and find the smallest number.

Source Code:

```
#include<stdio.h>
int main()
{
    int a,b,c;
    printf("Enter a number : ");
    scanf("%d%d%d",&a,&b,&c);
    if(a<b && a<c)
    {
        printf("%d is smallest",a);
    }
    else if(b<a && b<c)
    {
        printf("%d is smallest",b);
    }
    else
    {
        printf("%d is smallest",c);
    }
    return 0;
}
```

12. Write a program to input a number and check odd/even.

Source Code:

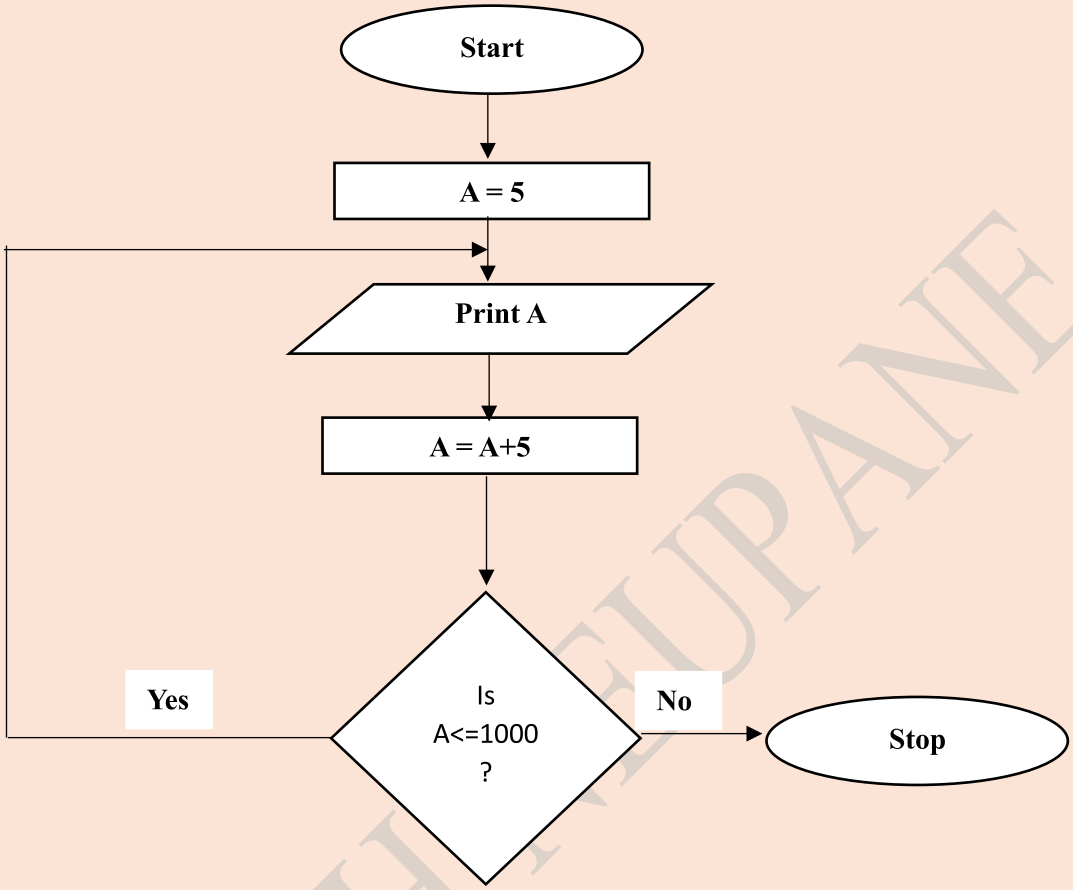
```
#include<stdio.h>
int main()
{
    int a;
    printf("Enter a number : ");
    scanf("%d",&a);
    if(a%2==0)
    {
        printf("Even");
    }
    else
    {
        printf("Odd");
    }
    return 0;
}
```

13. Write a program to find sum of first 50 odd natural numbers.

Source Code:

```
#include<stdio.h>
int main()
{
   int i,sum=0;
   for(i=1;i<=100;i++)
   {
      if(i%2==1)
      {
        sum=sum+i;
      }
   }
   printf("The sum is : %d",sum);
   return 0;
}
```

14. Draw a flowchart to print all numbers from 1 to 1000 which are divisible by 5.



15. Write a program to display the following:

10 20 35 55 80 ……………………….. up to 10th term.

Source Code

```
#include<stdio.h>
int main()
{
   int i,a=10,d=10;
   for(i=1;i<=10;i++)
   {
      printf("%d ",a);
      a=a+d;
      d=d+5;
   }
   return 0;
}
```

Group C

Comprehensive Answer Questions: **[3x5=15]**

16. What is a language translator? Explain its types. Differentiate between compiler and interpreter.

Answer: Language translator is an utility application that is used to convert programs written in Assembly or High Level language into machine level language. As a computer can only understand program written in machine level language i.e. 0 and 1 form. We need a language translator to execute the programs written in any other language than machine level language. There are three types of language translators i.e. Assembler, Compiler and Interpreter.

Assembler: It is a type of language translator that converts programs written in Assembly level language to machine level language. In Assembly level language, programs are written in the form of pseudocodes like ADD(for addition), SUB(for subtraction) etc. which is not understood by the computer directly.

Compiler: It is a type of language translator that translates the program written in High Level Language to Machine Level Language. Compiler converts the whole program at once.

Interpreter: It is a type of language translator that translates the program written in High Level Language to Machine Level Language. It translates the program line by line.

The difference between compiler and interpreter is shown below:

Compiler	***Interpreter***
1) It converts whole program at once.	1) It converts the program line by line.
2) Execution is faster.	2) Execution is slower.
3) Debugging is difficult.	3) Debugging is easy.
4) It generates object code.	4) It doesnot generate object code.
5) It does not allow the program to execute until it is completely error free.	5) It allows the program to execute and the execution stops at the line of error.

17. Why do we need decision making statements in C? Write a program to input marks of a student in 5 subjects and find total marks, percentage, result(Pass/Fail) and division.

Answer:

(Part-I)

Decision statement are those type of statements that helps to make decision from the given expressions. There are two types of decision making statements in C i.e. if and switch. We need decision making statements because they helps to make decision from the given condition.

(Part-II)

Source Code:

```
#include<stdio.h>
int main()
{
    int a,b,c,d,e,tm,p;
    printf("Enter the marks in 5 subjects :");
    scanf("%d%d%d%d%d",&a,&b,&c,&d,&e);
    tm=a+b+c+d+e;
    p=tm/5;
    printf("\n Total Marks : %d",tm);
    printf("\n Percentage : %d",p);
    if(a>=40 && b>=40 && c>=40 && d>=40 && e>=40)
    {
        printf("\nResult : PASS");
        if(p>=80)
        {
            printf("\n Division : Distinction");
        }
        else if(p>=60)
        {
            printf("\n Division : First Division");
        }
        else if(p>=50)
        {
            printf("\n Division : Second Division");
        }
        else if(p>=40)
        {
            printf("\n Division : Third Division");
        }
    }
    else
    {
        printf("\n Result: FAIL");
    }
    return 0;
}
```

18. Create the following menu driven program:

1. Area of Circle
2. Display odd numbers 100 to 200

   Enter your choice:

Source Code:

```
#include<stdio.h>

int main()

{

  int r,a,i,choice;

  printf("1.Area of Circle \n 2. Display the odd numbers 100 to 200");

  printf("\nEnter your choice:");

  scanf("%d",&choice);

  switch(choice)

  {

    case 1:

    printf("\n Enter the radius of circle:");

    scanf("%d",&r);

    a=3.14*r*r;

    printf("The area of the circle is: %d",a);

    break;

    case 2:

    for(i=100;i<=200;i++)

    {

      if(i%2==1)

      {

        printf("%d ",i);

      }

    }
break;
default: printf(“Invalid Input ! Enter Again”);
    }
    return 0;
}
```

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