Unit II	Control Structures	Mark - 16	
S. N.	MSBTE Board Asked Questions	Exam Year	Marks
1	State any four decision making statements.	W-23, S-22 S-18,	2M
Ans.	Decision making statements: 1. if statement 2. if-else statement 3. if-else-if ladder 4. Nested if-else statement 5. switch statement 6. conditional operator statement (? : operator)		
2	Write a program using switch statement to check whether entered character is VOWEL or CONSONANT	W-23, W-18	4M

Ans.	# include<stdio.h>
	#include<conio.h>
	void main()
	{
	char ch;
	printf("Enter any character");
	scanf("%c", &ch);		

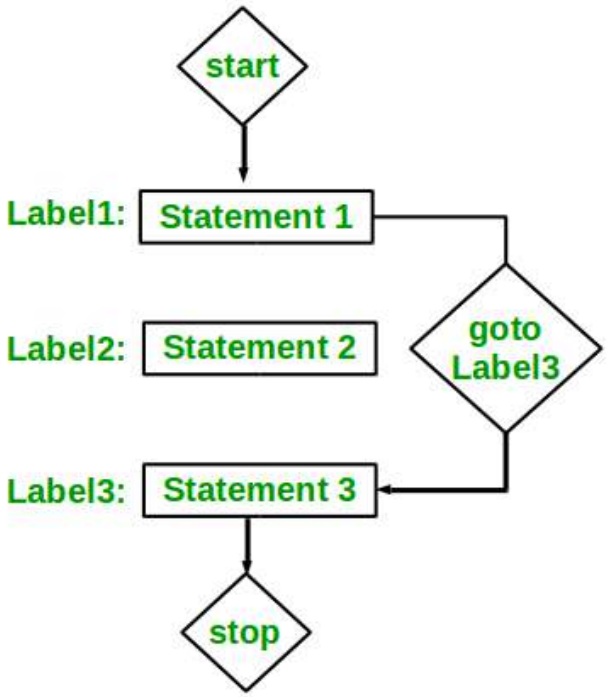
```
switch(ch)
{
case ‘a’:
printf("%c is a vowel",ch);
break;
case 'e':
printf("%c is a vowel",ch);
break;
case 'i':
printf("%c is a vowel",ch);
break;
case 'o':
printf("%c is a vowel",ch);
break;
case 'u':
printf("%c is a vowel",ch);
break;
default:
printf("%c is a consonant",ch);
break;
}
getch();
}
```

3	Give the syntax of for loop	S-23	2M

Ans

The syntax of for loop in c language is given below:

```
for(Expression 1; Expression 2; Expression 3)
{
//code to be executed.
}
```

4	Explain GO-TO statement with Example	S-23	4M
Ans.	**The C goto statement is a jump statement which is sometimes also referred to as an unconditional jump statement. The goto statement can be used to jump from anywhere to anywhere within a function.** **Syntax:** **Syntax1 | Syntax2** **----------** **goto label; | label:** **. | .** **. | .** **. | .** **label: | goto label;** **In the above syntax, the first line tells the compiler to go to or jump to the statement marked as a label. Here, the label is a user-defined identifier that indicates the target statement. The statement immediately followed after 'label:' is the destination statement. The 'label:' can also appear before the 'goto label;' statement in the above syntax.** 

5	Write a C program to print following pattern using loop 1 2 3 4 5 1234 123 12 1	S-23	6M

Ans	// C program to print the inverted right half pyramid of
	// stars
	#include <stdio.h>
	
	int main()
	{
	int rows = 5;
	
	// first loop to print all rows
	for (int i = 0; i < rows; i++) {
	
	// first inner loop to print the * in each row
	for (int j = 0; j < rows - i; j++) {
	printf("* ");
	}
	printf("\n");
	}
	}		

6	Write a program to convert temperature in Fahrenheit degrees to Centigrade degrees.	W-22	4M

Ans	#include<stdio.h>
	#include<conio.h>
	void main()
	{
	float celsius, fahrenheit;
	printf("Enter temperature in Fahrenheit: ");
	scanf("%f", &fahrenheit);
	celsius = (fahrenheit - 32) * 5 / 9;		

	printf("Temperature in Fahrenheit =%f Temperature in Centigrade =%f", fahrenheit, celsius);
	getch();
	}		

7	Write a C program to print following pattern using loop 1 22 333 4444 55555	W-22	4M

Ans	#include<stdio.h>
	#include<conio.h>
	void main()
	{
	int i,j,n;
	clrscr();
	for(i=1;i<=5;i++)
	{
	for(j=1;j<=i;j++)
	{
	printf("%d",i);
	}
	printf("\n");
	}
	getch();
	}		

8	Write a C program with comments to reverse the digit of integer number. For example the number 12345 should be displayed as 54321.	W-22	6M

Ans	#include<stdio.h>
	#include<conio.h>
	void main()
	{
	int num=0;		

```
clrscr();
printf("Enter the number"); // Accept the number to be reversed
scanf("%d", &num);
 int rev_num = 0;
 while (num > 0)  //   se a while loop to iterate until the value of num becomes 0
{
//last digit of number is extracted by using  num %10 (modulo operator)
//which is then multiplied by 10
// num is updated by dividing  by 10 which removes last digit in each iteration

        rev_num = rev_num * 10 + num % 10;
        num = num / 10;
 }
printf("Reverse number is %d", ans); // print the reversed number
getch();
}
```

9	Explain do while loop with example.	S-22 S-23	4M

Ans.

The do...while in C is a loop statement used to repeat some part of the code till the given condition is fulfilled. It is a form of an exit-controlled or post-tested loop where the test condition is checked after executing the body of the loop. Due to this, the statements in the do...while loop will always be executed at least once no matter what the condition is.

Syntax of do...while Loop in C

```
do {

   // body of do-while loop

} while (condition);
```

```
// C Program to demonstrate the use of do...while loop
#include <stdio.h>
```

```
int main()
{

   // loop variable declaration and initialization
   int i = 0;
   // do while loop
   do {
      printf("Hello\n");
      i++;
   } while (i < 3);

   return 0;
}
```

Out Put

Hello

Hello

Hello

10	**Explain nested if-else with example.**	**W-19**	**4M**

Ans.

When a series of decision is required, nested if-else is used. Nesting means using one if-else construct within another one. If the condition in the outer if, is true, then only the inner if-else will get executed. Further the statements in the inner if will get execute only if the condition of inner if, evaluates to true. If it is false, the statements in inner else will get executed.

If the outer if evaluates to false, then the statements in outer else get executed.

General syntax:

	if(condition) {
	if(condition) {
	statements
	} else {
	statements
	}
	} else
	{
	statements
	}
	statements
	Example:
	#include<stdio.h>
	#include<conio.h>
	void main() {
	int val;
	clrscr();		

11	Illustrate the use of break and continue statement with example.	W-19	4M
Ans	**Break**: It breaks the execution of the loop which allows exiting from any loop or switch, such that break statement skips the remaining part of current iterations of the loop. Syntax: break; **Continue:** It is used when it is required to skip the remaining portion of the loop without breaking loop it will transfer control directly to next iteration Syntax: continue; In given program sequence if "break" executes then execution control will jump out of loop & next statement after loop will be executed. In given program sequence if "continue" executes then execution control will skip remaining statements of loop & will start next iteration of loop		
12	Write a program to add , subtract, multiply and divide two	W-19	4M

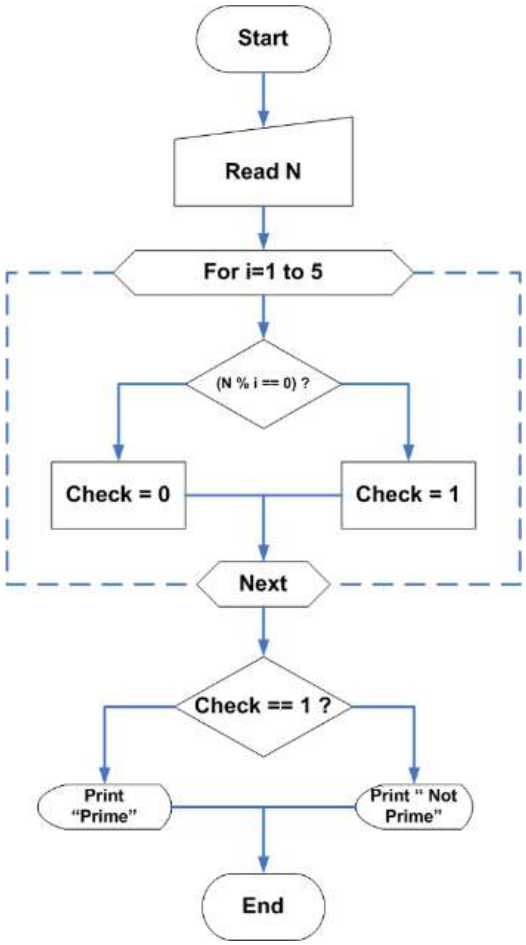
	numbers, accepted from user using switch case.		

Ans.	#include<stdio.h>
	#include<conio.h>
	void main()
	{
	int a,b,ch,add,sub,mul,div;
	clrscr();
	printf("\n1 for addition \n2 for substraction");
	printf("\n3 for multiplication \n4 for division");
	printf("\nEnter two numbers:");
	scanf("%d%d",&a,&b);
	printf("\nEnter your choice:");
	scanf("%d",&ch);
	switch(ch)
	{
	case 1:
	add=a+b;
	printf("Addition of a & b=%d",add);
	break;
	case 2:
	sub=a-b;
	printf("Substraction of a & b=%d",sub);
	break;
	case 3:
	mul=a*b;
	printf("Multiplication of two numbers=%d",mul);
	break;
	case 4:
	div=a/b;
	printf("Division of two numbers=%d",div);
	break;
	default:
	printf("Invalid choice....");
	}		

	getch(); }		
13	**Write the syntax of switch case statement.**	**S-19**	**2M**
Ans	**switch(variable)** **{** **case value1:** **statements** **break;** **case value2:** **statements;** **break;** **.** **.** **.** **default:** **statements;** **break;** **}**		
14	**State any two differences between while and do-while statement.**	**S-19** **W-22**	**2M**

Ans.

While	do-while
Condition is checked first then statement(s) is executed.	Statement(s) is executed atleast once, thereafter condition is checked.
It might occur statement(s) is executed zero times, If condition is false.	At least once the statement(s) is executed.
No semicolon at the end of while. while(condition)	Semicolon at the end of while. while(condition);

	If there is a single statement, brackets are not required.	Brackets are always required.		
	Variable in condition is initialized before the execution of loop.	variable may be initialized before or within the loop.		
	while loop is entry controlled loop.	do-while loop is exit controlled loop.		
	while(condition) { statement(s); }	do { statement(s); } while(condition);		
15	Draw flow chart for checking weather given number is prime or not.		S-19	4M
Ans				

16	Write a program to take input as a number and reverse it by While loop.	S-19	4M

Ans.	#include<stdio.h>
	#include<conio.h>
	void main()
	{
	int no;
	int sum=0,rem;
	printf("\n Enter number:");
	scanf("%d",&no);
	while(no>0)
	{
	rem=no%10;
	no=no/10;
	sum=sum*10+ rem;
	}
	printf("\nsum=%d",sum);
	getch();
	}		

17	Give syntax of if-else ladder.	W-18	2M

Ans.	if(condition_expression_One)
	{
	statement1;
	}
	else if (condition_expression_Two)
	{
	statement2;		

18	Explain do –while loop with example.	S-18	4M
Ans.	In some applications it is necessary to execute the body of the loop before the condition is checked; such situation can be handled by do statement. • At least once the body of loop will be executed. • do statement, first executes the body of the loop. • At the end of the loop, the test condition in the while statement is		

	evaluated. If the condition is true, then it continues to execute body of the loop once again.
	⍰ This process continues as long as the condition is true.
	⍰ When the condition becomes false, the loops will be terminated and the control goes to next statement after while statement.
	Example:
	`#include <stdio.h>`
	`#include <conio.h>`
	`void main()`
	`{`
	`int i=1;`
	`clrscr();`
	`printf("\n Odd numbers from 1 to 20 are \n");`
	`do`
	`{`
	`if(i%2 ! = 0)`
	`printf("\n %d", i);`
	`i++;`
	`}while(i<=20); /* The loop iterates till the value of i is less than or equal to 20 */`
	`getch();`
	`}`		

19	**Write a program using switch statement to check whether entered Character is VOWEL or CONSONANT.**	**W-18**	**6M**

Ans.	`#include<stdio.h>`
	`#include<conio.h>`
	`void main()`
	`{`
	`char ch;`
	`clrscr();`
	`printf("Enter character:");`
	`scanf("%c",&ch);`
	`switch(ch)`
	`{`		

	case 'a':
	case 'e':
	case 'i':
	case 'o':
	case 'u':
	case 'A':
	case 'E':
	case 'I':
	case 'O':
	case 'U':
	printf("\n Entered character is VOWEL");
	break;
	default:
	printf("\n Entered character is CONSONANT");
	}
	getch();
	}		

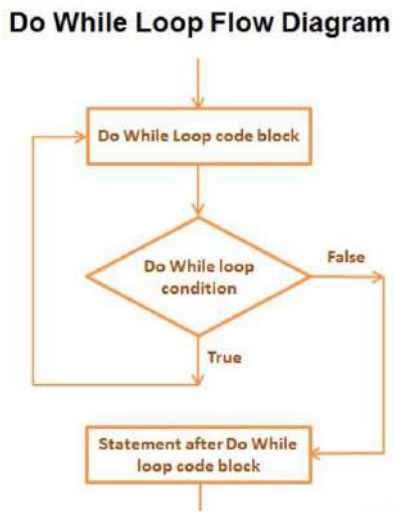
20	State use of while loop with syntax.	S-18	2M

Ans	While loop is used in programming to repeat a specific block of statement until some end condition is met.
	The syntax of a while loop is:
	while (test Expression)
	{
	Statements...
	statements....
	}		

21	Draw a flowchart of Do-while loop and write a programto add Numbers until user enters zero.	S-18	6M

Ans	Program:-
	#include <stdio.h>
	#include <conio.h>
	void main()
	{
	int no,sum=0;		

```
clrscr();
do
{
printf("\n Enter a number:");
scanf("%d",&no); sum=sum+no;
}while(no!=0);
printf("\n Sum of entered numbers =%d",sum);
getch();
}
```



Thank You

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