**10 MCQ (1 mark each)**

Q.1. In C all functions except main() can be called recursively.

A) True

B) False

Q.2. All members of union \_\_\_.

A) Stored in consecutive memory location

B) Share same memory location

C) Store at different location

D) All of these

Q.3. Which of the following statements correct about the below code?

maruti.engine.bolts=25;

A) Structure bolts is nested within structure engine.

B) Structure engine is nested within structure maruti.

C) Structure maruti is nested within structure engine.

D) Structure maruti is nested within structure bolts.

Q.4. size of union is size of the longest element in the union.

A) Yes

B) No

Q.5. Union elements can be of different sizes.

A) True

B) False

Q.6. Are the properties of i, j and x, y in the following program same?

typedef unsigned long int uli;

uli i, j;

unsigned long int x, y;

A) Yes

B) No

Q.7. A recursive function in C \_\_\_.

A) Call itself again and again

B) Loop over a parameter

C) Return multiple values

D) None of these

Q.8. one of elements of a structure can be a pointer to the same structure.

A) True

B) False

Q.9. What is the value of EOF in C?

A) -1

B) 0

C) 1

D) Null

Q.10. In the following code, the P2 is Integer Pointer or Integer?(set1)

typedef int \*ptr;

ptr p1, p2;

A) Integer

B) Integer pointer

C) Error in declaration

D) None of above

**5 MCQ (2 mark each)**

Q.1. What will be the output of the program?

#include<stdio.h>

int i;

int fun();

int main()

{

while(i)

{

fun();

main();

}

printf("Hello\n");

return 0;

}

int fun()

{

printf("Hi");

}

A) Hello

B) Hi Hello

C) No output

D) Infinite loop

Q.2. What will be the output of the program?

#include<stdio.h>

int main()

{

union a

{

int i;

char ch[2];

};

union a u;

u.ch[0]=3;

u.ch[1]=2;

printf("%d, %d, %d\n", u.ch[0], u.ch[1], u.i);

return 0;

}

A) 3, 2, 515

B) 515, 2, 3

C) 3, 2, 5

D) 515, 515, 4

Q.3. What will be the output of the program?

#include<stdio.h>

int main()

{

enum days {MON=-1, TUE, WED=6, THU, FRI, SAT};

printf("%d, %d, %d, %d, %d, %d\n", MON, TUE, WED, THU, FRI, SAT);

return 0;

}

A) -1, 0, 1, 2, 3, 4

B) -1, 2, 6, 3, 4, 5

C) -1, 0, 6, 2, 3, 4

D) -1, 0, 6, 7, 8, 9

Q.4. What will be the output of the program?

#include<stdio.h>

int main()

{

enum days {MON=-1, TUE, WED=6, THU, FRI, SAT};

printf("%d, %d, %d, %d, %d, %d\n", ++MON, TUE, WED, THU, FRI, SAT);

return 0;

}

A) -1, 0, 1, 2, 3, 4

B) Error

C) 0, 1, 6, 3, 4, 5

D) 0, 0, 6, 7, 8, 9

Q. 5. Point out the error in the program?

#include<stdio.h>

int main()

{

struct a

{

float category:5;

char scheme:4;

};

printf("size=%d", sizeof(struct a));

return 0;

}

A) Error: invalid structure member in printf

B) Error in this float category:5; statement

C) No error

D) None of above

**2 Coding Questions (5 mark each)**

Q.1. In Fintech Corp. wants to automate their salary calculation, Write a C program to input the details with two employees and calculate the total payment of same employees using structure.

**Sample Input 1**

Sanjay

600

15

Kiran

500

10

**Sample Output 1**

Sanjay 9000

Kiran 5000

**Sample Input 2**

Rahul

500

10

Sahil

500

5

**Sample Output 2**

Rahul 5000

Sahil 2500

**Input Explanation**

Input consists of six lines separated values.

First line input will consist of string value, which represents the name of first employee.

Second line input will consist of integer value, which represents the wages per day of first employee.

Third line input will consist of integer value, which represents the number of working days of the first employee.

Fourth line input will consist of string value, which represents the name of second employee.

Fifth line input will consist of integer value, which represents the wages per day of second employee.

Sixth line input will consist of integer value, which represents the number of working days of the second employee.

**Output Explanation**

Output consist of two lines.

First line output will be name of first employee and his salary, separated with space.

Second line output will be name of second employee and his salary, separated with space.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test Case 1** | **Test Case 2** | **Test Case 3** | **Test Case 4** | **Test Case 5** |
| **Input** | Hitesh  1000  10  Kripal  900  3 | Kapil  900  5  Khushi  800  5 | Rani  1000  5  Ravi  500  10 | Shikha  5000  2  Shiva  10000  1 | Shruthi  500  2  Megha  3000  2 |
| **Output** | Hitesh 10000  Kripal 2700 | Kapil 4500  Khushi 4000 | Rani 5000  Ravi 5000 | Shikha 10000  Shiva 10000 | Shruthi 1000  Megha 6000 |

**#Solution**

#include<stdio.h>

struct worker

{

char name[20];

int wage;

int wdays;

};

void main()

{

struct worker a,b;

scanf("%s",a.name);

scanf("%d",&a.wage);

scanf("%d",&a.wdays);

scanf("%s",b.name);

scanf("%d",&b.wage);

scanf("%d",&b.wdays);

int p1=a.wage\*a.wdays;

int p2=b.wage\*b.wdays;

printf("%s %d\n",a.name,p1);

printf("%s %d\n",b.name,p2);

}

Q.2. Write a program in C to calculate the sum of numbers from 1 to n using recursion.

**Sample Input 1**

5

**Sample Output 1**

15

**Sample Input 2**

10

**Sample Output 2**

55

**Input Explanation**

Input consists of single integer value n

**Output Explanation**

Output consists of single integer value that is sum of integers upto n.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test Case 1** | **Test Case 2** | **Test Case 3** | **Test Case 4** | **Test Case 5** |
| **Input** | 3 | 5 | 4 | 6 | 7 |
| **Output** | 6 | 15 | 10 | 21 | 28 |

**#Solution**

#include <stdio.h>

int addNumbers(int n);

int main() {

int num;

scanf("%d", &num);

printf("%d", addNumbers(num));

return 0;

}

int addNumbers(int n) {

if (n != 0)

return n + addNumbers(n - 1);

else

return n;

}

**1 Coding Question (10 mark)**

Q.1. Write a program in C to get the largest element of an array using recursion.

**Sample Input 1**

5

5 10 15 20 25

**Sample Output 1**

25

**Sample Input 2**

4

44 85 92 36

**Sample Output 2**

92

**Input Explanation**

Input consists of two lines separated values

First line input is integer value that is number of elements in array

Second line input consists of multiple space separated integer values that is elements of array

**Output Explanation**

Output consists of single integer value that is largest element of array

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test Case 1** | **Test Case 2** | **Test Case 3** | **Test Case 4** | **Test Case 5** |
| **Input** | 5  12 15 13 0 3 | 4  75 77 95 62 | 3  65 74 12 | 6  1 2 3 4 5 6 | 3  95 62 34 |
| **Output** | 15 | 95 | 74 | 6 | 95 |

**#Solution**

#include<stdio.h>

#define MAX 100

int MaxElem(int []);

int n;

int main()

{

int arr1[MAX],hstno,i;

scanf("%d",&n);

for(i=0;i<n;i++)

{

scanf("%d",&arr1[i]);

}

hstno=MaxElem(arr1);

printf("%d",hstno);

return 0;

}

int MaxElem(int arr1[])

{

static int i=0,hstno =-9999;

if(i < n)

{

if(hstno<arr1[i])

hstno=arr1[i];

i++;

MaxElem(arr1);

}

return hstno;

}