**FA-4**

**2nd SEMESTER**

**CS101-PSTC**

**Time allowed: 60 Minutes Max. Marks: 20**

**General Instructions:**

* **All Questions are mandatory**

Q. 1 TO 4(1 MARK EACH)

Q. 5 TO 7(2 MARKS EACH)

Q. 8(10 MARKS EACH)

**SECTION A**

Q.1 Choose the correct output of the following snippet ?

#include<stdio.h>

enum year{Sun, Mon, Tuesday, Wednesday};

int main(){

int i;

for (i=Sun; i<=Sun; i++)

printf("%d ", i);

return 0;

}

1. **0**
2. 0 1 2 3
3. 0 1 2 3 0
4. 0123

Q.2 Choose the correct output of the following snippet ?

union test

{

    int x;

    char arr[8];

    int y;

};

int main()

{

    printf("%d", sizeof(union test));

    return 0;

}

1. 12
2. 16
3. **8**
4. 32

Q.3 Bit fields can only be declared as part of a structure

1. **true**
2. false
3. Compiler Dependent

D) Undefined

Q.4 Consider the following code and choose the correct output

struct Point

{

   int x=10;

int y=20;

};

int main()

{

   struct Point p1;

p1.x=p1.y;

p1.y=p1.x;

printf(“%d %d”,p1.x,p1.y);

}

1. 10 20
2. 20 20
3. Run time error
4. **Compile time error**

Q.5 Choose the correct output of the following snippet ?

#include <stdio.h>

struct student

{

char \*name;

};

struct student fun(void)

{

struct student s;

s.name = "cse";

return s;

}

void main()

{

struct student m = fun();

s.name = "department";

printf("%s", m.name);

}

1. cse
2. **Compiler error**
3. department
4. csedepartment

Q.3 Choose the correct output of the following snippet ?

#include<stdio.h>

int main()

{

union var

{

int a,b;

};

union var v;

v.a=151;

v.b=251;

printf("%d",v.a);

return 0;

}

1. **251**
2. 151
3. error
4. replace union with struct to get the output

Q.7 Choose the correct output of the following snippet ?

#include <stdio.h>

struct student

{

char \*name;

};

void main()

{

struct student k, m;

k.name = "no";

m = k;

printf("%s %s", k.name, m.name);

}

A nono

B Compiler Error

C Run Time Error

**D no no**

**SECTION B**

**Result of Annual Examination**

The annual examination is conducted for n students for three subjects. Write a program to read the data and determine the following:

* (a) Total marks obtained by each student.
* (b) Name of the Topper among n students.

**Input Format:**

Line 1 : Number of students i.e., n

Next n lines: Next n lines read the names and roll numbers of students as shown in sample input.

Next 3 lines: Read the input for marks obtained by first student in all the three subjects.

Next 3 lines: Read the input for marks obtained by second student in all the three subjects

…………………..

Last 3 lines: Read the input for marks obtained by last student in all the three subjects.

**Output Format:**

First n lines display the total marks obtained by students roll number wise

Last line of the output prints the name of the Topper.

**Sample Test Case:**

Input:

3// number of students

Anjali 1// Name of students and roll numbers separated by single space

Shivam 2

Shreya 3

10 //Marks for Anjali in sub 1

20 //Marks for Anjali in Sub 2

30// Marks for Anjali in Sub 3

20// Marks for shivam in sub 1

20

30

30//Marks for Shreya in sub 1

30

30

Output:

Total marks obtained by Anjali = 60

Total marks obtained by Shivam = 70

Total marks obtained by Shreya = 90

Shreya is the topper

**Note: Refer to following sample test case for Actual input and output.**

#include<stdio.h>

#define SIZE 30

struct student {

char name[30];

int rollno;

int sub[3];

};

void main() {

**// write your code here**

**Sample Test Case:**

Input:

3// number of students

Anjali 1// Name of students and roll numbers separated by single space

Shivam 2

Shreya 3

10 //Marks for Anjali in sub 1

20 //Marks for Anjali in Sub 2

30// Marks for Anjali in Sub 3

20// Marks for shivam in sub 1

20

30

30//Marks for Shreya in sub 1

30

30

Output:

Total marks obtained by Anjali = 60

Total marks obtained by Shivam = 70

Total marks obtained by Shreya = 90

Shreya is the topper

Test Cases:

Test Case 1:

**Input:**

2

Ram 1

Sham 2

15

20

10

20

30

10

**Output:**

Total marks obtained by Ram = 45

Total marks obtained by Sham = 60

Sham is the topper

Test Case 2:

**Input:**

4

Mohit 1

Rohit 2

Laxman 3

Reema 4

40

40

40

30

20

10

20

20

30

0

50

50

**Output:**

Total marks obtained by Mohit = 120

Total marks obtained by Rohit = 60

Total marks obtained by Laxman = 70

Total marks obtained by Reema = 100

Mohit is the topper

Test Case 3:

**Input:**

3

Sidak 1

Bhavna 2

Srishti 3

40

40

0

50

40

50

20

20

30

**Output:**

Total marks obtained by Sidak = 80

Total marks obtained by Bhavna = 140

Total marks obtained by Srishti = 70

Bhavna is the topper

Test Case 4:

**Input:**

2

Aulakh 1

Roshni 2

20

20

30

0

50

50

**Output:**

Total marks obtained by Aulakh = 70

Total marks obtained by Roshni = 100

Roshni is the topper

Test Case 5:

**Input:**

1

Anant 1

50

50

50

**Output:**

Total marks obtained by Anant = 150

Anant is the topper

Solution

**#include<stdio.h> //Read only code stub**

**#define SIZE 30**

**struct student {**

**char name[30];**

**int rollno;**

**int sub[3];**

**};**

**void main() {**

int i, j, max, count, total, n, a[SIZE], ni;

struct student st[SIZE];

scanf("%d", &n);

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

scanf("%s", &st[i].name);

scanf("%d", &st[i].rollno);

}

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

for (j = 0; j <= 2; j++)

{

scanf("%d", &st[i].sub[j]);

}

}

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

total = 0;

for (j = 0; j < 3; j++) {

total = total + st[i].sub[j];

}

printf("\nTotal marks obtained by %s = %d ", st[i].name,total);

a[i] = total;

}

max = 0;

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

if (max < a[i]) {

max = a[i];

ni = i;

}

}

printf("\n%s is the topper ", st[ni].name);

}