**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 Which Operator is used to access members of a structure in C

a) –

b) \*

c)&

**d) .**

Q.2 Which of the following structure declaration will throw an error?

A. struct temp{}s;

main(){}

B. struct temp{};

struct temp s;

main(){}

C. struct temp s;

struct temp{};

main(){}

**d.none of the these**

Q.3 #include<stdio.h>

struct Point

{

int x, y, z;

};

int main()

{

struct Point p1 = {.y = 0, .z = 1, .x = 2};

printf("%d %d %d", p1.x, p1.y, p1.z);

return 0;

}

(A) Compiler Error

**(B) 2 0 1**

(C) 0 1 2

(D) 2 1 0

Q.4 Choose the correct option for the following code snippet ?

typedef struct Student

{

 int rollno;

 int total;

} Student;

Student s1;

struct Student s2;

int main()

{

s1.rollno=10;

s2.rollno=20;

printf("%d %d", s1.rollno,s2.rollno);

return 0;

}

1. **Output will be 10 20**
2. Error in line : Students s1
3. Run time error
4. None of these

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

#include<stdio.h>

enum year{benz, suzuki, creta, ciaz};

int main(){

int k;

for (k=creta; k>=ciaz; k++)

printf("%d ", k);

return 0;

}

1. 2 1 0
2. 0 1 2 3
3. 0 1 2 3 0
4. **No output**

Q.6 Choose the correct output of the following snippet ?

#include <stdio.h>

struct student

{

char \*name;

};

struct student s;

struct student fun(void)

{

struct student s;

s.name = "Token";

return s;

}

int main()

{

struct student m = fun();

s.name = "ring";

s = m;

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

return 0;

}

1. Multiple declaration of structure variable s not allowed
2. Compile time error
3. ring
4. **Token**

Q.7 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;

v.a=123;

v.b=536;

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

return 0;

}

1. **536**
2. 151
3. 123
4. replace union with struct to get the output

**SECTION B**

**Highest mileage**

Anubhav and Anant have two cars namely Fordfigo and Swift. They both compete to know whose car gives more mileage than other’s. Help them do that with the help of code.

Read the data related to these two cars as shown in the input format and Write a program to find which car gives the highest mileage. Refer to Input/Output format and sample test case for proper formatting of the results.

struct Car

{

int startKm;

int endKm;

int litre;

};

int main{

struct Car //complete this line by making as many variables as you need of type car // here and write your code

**INPUT FORMAT:**

LINE1: read startKm for fordfigo

LINE2: read endKm for fordfigo

LINE3: read fuel(in liters) used by fordfigo

LINE4: read startKm for swift

LINE5: read endKm for swift

LINE6: read fuel(in liters) used by swift

**OUTPUT FORMAT**

LINE1: Mileage of fordfigo =…..

LINE2: Mileage of swift =…..

LINE3: Mileage of swift is more than fordfigo

( note: for output format let swift gives more mileage than fordfigo, fordfigo and swift are the names of the cars as shown in the sample output )

[Hint: struct]

Sample Input:

//Enter the startKm of fordfigo:

50

//Enter the endKm of fordfigo:

90

//Enter the fuel used of fordfigo:

4

//Enter the startKm of swift:

50

//Enter the endKm of swift:

90

//Enter the fuel used of swift:

2

**Sample Output:**

Mileage of fordfigo = 10.00km/lt

Mileage of swift=20.00km/lt

Mileage of swift is more than fordfigo

**Test Cases:**

*Test Case1:*

*INPUT:*

10

20

5

10

20

3

OUTPUT :

Mileage of fordfigo = 2.00km/lt

Mileage of swift= 3.33km/lt

Mileage of swift is more than fordfigo

Test Case2:

100

999

50

100

999

50

OUTPUT :

Mileage of fordfigo = 17.98km/lt

Mileage of swift= 17.98km/lt

Both give equal Mileage

Test Case3:

1000

9999

100

1001

9999

100

OUTPUT :

Mileage of fordfigo = 89.99km/lt

Mileage of swift= 89.98km/lt

Mileage of swift is more than fordfigo

Test Case4:

100

200

50

100

300

50

OUTPUT :

Mileage of fordfigo = 2.00km/lt

Mileage of swift= 4.00km/lt

Mileage of swift is more than fordfigo

Test Case5:

100

200

50

100

199

50

OUTPUT :

Mileage of fordfigo = 2.00km/lt

Mileage of swift= 1.98km/lt

Mileage of fordfigo is more than swift

Solution:

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

**struct Car**

**{**

**int startKm;**

**int endKm;**

**int litre;**

**};**

**int main()**

**{**

**struct Car** fordfigo, swift;

float m1,m2;

//printf("Enter the startKm of car 1:\n");

scanf("%d",&fordfigo.startKm);

//printf("Enter the endKm of car 1:\n");

scanf("%d",&fordfigo.endKm);

//printf("Enter the fuel used of car 1:\n");

scanf("%d",&fordfigo.litre);

//printf("Enter the startKm of car 2:\n");

scanf("%d",&swift.startKm);

//printf("Enter the endKm of car 2:\n");

scanf("%d",&swift.endKm);

//printf("Enter the fuel used of car 2:\n");

scanf("%d",&swift.litre);

//Mileage

m1= (float)(fordfigo.endKm-fordfigo.startKm)/fordfigo.litre;

m2= (float)(swift.endKm-swift.startKm)/swift.litre;

printf("Mileage of forfigo:%.2fkm/lt\n",m1);

printf("Mileage of swift:%.2fkm/lt\n",m2);

if(m2>m1)

printf("Mileage of swift is more than fordfigo");

else if(m2==m1)

printf("Both give Equal Mileage");

else

printf("Mileage of fordfigo is more than swift");

return 0;

}