**Rules:**

1. All the variable names or function names used in the program should be meaningful.

(Follow coding guidelines provided for reference)

1. Solve all the questions as a separate file
2. For "Find the output" questions, provide the solutions based on your understanding of the concepts.

**Questions:**

1. Are the expressions \*ptr++ and ++\*ptr the same?

ANSWER:

No, because ++\*ptr will act as ++(\*ptr) which in turn increment the value stored at the memory address to which its pointing to while \*ptr++ will act as \*(ptr++) which will increment the memory address to which its pointing to .

1. What is size of NULL

ANSWER:

The size of NULL is 2.

1. What will be the output of the following code?

main()

{

int i= 4, j= -2;

square (i, &j);

printf ( '\ni = %d j= %d", i,j);

}

square ( int i, int \*j)

{

i = i\*i;

\*j = \*j \* \*j;

}

ANSWER:

i=4 j=4

1. What is the output of the below cod?

main( )

{

float\* pointerMagic ( float\*);

float p = 23.5, \*q;

q=&p;

printf ( "Before call %u", q ) ;

q= pointerMagic (&p);

printf ( "After call %u", q ) ;

}

float\* pointerMagic ( float \*j)

{

j = j + 1;

return j;

}

ANSWER:

Before Call 65522

After Call 65526

1. What are wild pointers and dangling pointers. Is it the same?

ANSWER:

Dangling pointers are pointer that are pointing to storage which is deleted or freed.

Wild pointers are pointer that are uninitialized.

Both are different but both cause the program to crash.

1. void \*k;

int \*j;

int a = 5;

j = &a;

k = &a;

k++;

Is anything wrong in the above code fragment? Explain why.

ANSWER:

Void data type size is 0, so the variable k cannot be initialized or be used in the program.

1. What is wrong in the below code fragment? Why is it wrong?

main() {

int a[] = {10. 20, 30, 40, 50};

int j;

for (j = 0; j < 5; j++) {

printf ("%d", \*a);

a++;

}

}

ANSWER:

a++ cannot be incremented because it is integer array, it will through Lvalue Required error at compile time.

1. What would be the output of the below program and why?

main()

{

char str1[] = "Hello";

char str2[] = "Hello";

if (str1 == str2)

printf("\nEqual");

else

printf("\nUnequal");

}

ANSWER:

Char

1. What is the output of code below

main()

{

char str[5] = "HelloWorld";

printf("%s", str);

}

ANSWER:

It will throw a compile time error because we are initializing more char then specified size.

1. Find the output:-

main()

{

char \*str[] ={"C", "Is", "bad", "When", "With", "Pointers"};

printf("%d", sizeof(str));

}

ANSWER:

12

1. What is the output?

main()

{

float a = 6.999;

float \*b, \*c;

b = &a;

c = b;

printf("\n%d, %d, %d, %d", a, \*(&a), \*b, \*c);

}

ANSWER:

0 -8192 -263 16411

1. Find the output:-

main()

{

static int a[] = {0, 1, 2, 3, 4};

static int \*p[] = {a, a+1, a+2, a+3, a+4}

int \*\*ptr;

ptr = p;

\*\*ptr++;

printf("\n%d %d, %d, ptr-p, \*ptr-a, \*\*ptr);

}

ANSWER:

1 1 1

1. Find the output:-

main()

{

int a[] = {2,4,6,8,10};

int i;

for (i=0; i<=4; i++)

{

\*(a+i) = a[i] + i[a];

printf("\n%d", \*(i+a));

}

}

ANSWER:

4

8

12

16

20

1. Find output:-

main( )

{

char str[] = "For your eyes only";'

int I;

char \*p;

for( p = str, i = 0; p +i<= str+strlen ( str) ; p++, i++ )

printf("%c"\*(p+i));

)

ANSWER:

It will through a compile time error stating that strlen should have a prototype.

1. Find the output:-

main()

{

static char\*s[]= {

"ice",

"green",

"cone",

"please"

};

static char \*\*ptr[] = {s+3, s+2, s+1, s};

char \*\*\*p = ptr;

printf("\n%s", \*\*++p);

printf("\n%s", \*--\*++p+3);

}

ANSWER:

cone

1. Find the output:-

main()

{

char sl[] = "C is a philosophy of life";

char t[40] ;

char\*ss, \*tt ;

ss = s;

tt = t;

while ( \*ss )

\*tt++ = \*ss++;

\*t=\0';

printf("\n%s",t);

}

ANSWER:

It will print nothing.

1. Find the output:-

main()

{

char mess[6][30] = {

"Don't walk in front of me ...",

"l may nol follow;",

"Don't walk behind me,.,",

"l may not lead ;",

"Just walk beside me.,.",

"And be my friend."

};

printf("\n%c%c", \*(mess[2]+9), \*(\*(mess+2)+9));

}

ANSWER:

kk

1. Is the below program correct or wrong? Explain why.

main()

{

char \*str1 ="United";

char \*str2 = "Front";

char \*str3;

str3 = strcat(str1, str2);

printf("\n%s", str3);

}

ANSWER:

Wrong, because \*str1, \*str2 and \*str3 should be char array not just char.

1. Would the code below compile?

main()

{

printf("%c", 7["Sundaram"]);

}

ANSWER:

Yes it will compile and return ‘m’ as output.

1. Find the output:-

main()

{

struct s1

{

char \*z;

int I;

struct s1 \*p;

};

static struct s1 a[] = {

{"Nagpur", 1, a+1},

{"Raipur", 2, a+2},

{"Kanpur", 3, a},

};

struct s1 \*ptr = a;

printf("\n%s %s %s", a[0].z, ptr->z, a[2].p->z);

}

ANSWER:

Nagpur Nagpur Nagpur

1. What is output for the code below:-

main()

{

struct a

{

category : 5;

scheme : 4;

};

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

}

ANSWER:

Size=2

1. What is the output of the program?

#include<stdio.h>

#include<stdlib.h>

int main()

{

int ret;

int \*ptr;

ptr = (int \*)malloc(sizeof(int)\*10);

free(ptr);

free(ptr);

return 0;

}

ANSWER:

It will print nothing because there is no print statement

1. What is the output of the below program? Justify

#include<stdio.h>

#include<stdlib.h>

int main()

{

int \*ptr;

ptr = (int \*)calloc(1,sizeof(int));

if (ptr != 0)

printf("%d\n",\*ptr);

return 0;

}

ANSWER:

It will print 0, because calloc will automatically assign Zero to each elements, number of elements we have chosen as 1, it will print only one 0.