**Pointers**

**-------------------------------------------------------------------------------------------------------**

Find out the output for the following programs.

1) #include <stdio.h >

int main()

{

**int \*p = 10; //pointer initialization p=&i**

printf(“ %u\n”, (unsigned int)p);

printf(“%d\n”,\*p);

}

Ans : 10 & Error

2) #include <stdio.h>

int main()

{

int \*ptr, a = 10;

ptr = &a;

\*ptr += 1;

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

}

Ans : 11 11

3) #include<stdio.h>

int main()

{

int x = -300;

unsigned char \*p;

p = &x;

printf(“%d\n”,\*p++);

printf(“%d\n”,\*p);

}

Ans: 212 , 254

4) #include<stdio.h>

int main()

{

int x = 256;

char \*p = &x;

\*++p = 2;

printf(“%d”,x);

}

Ans : 512

5) #include<stdio.h>

int main()

{

int x = 300;

if(\*(char \*)&x == 44)

printf(“Little Endian\n”);

else

printf(“Big Endian\n”);

}

Ans : little endian

6) #include <stdio.h>

void main()

{

int x = 0;

int \*ptr = &5;

printf("%p\n", ptr);

}

Ans : compile time error : we can’t assign constant to a pointer

7) #include<stdio.h>

int main()

{

int const \*p = 5;

int q;

p = &q;

printf(“%d”,++(\*p));

}

Ans : Compile time error : Read only location , const \*

8) #include<stdio.h>

int main()

{

int x = 10;

int const \* const p;

p = &x;

printf(“%d\n”, \*p);

}

Ans : Error : Read only location , const \*

9) #include <stdio.h>

int x = 0;

void main()

{

int \*const ptr = &x;

printf("%p\n", ptr);

ptr++;

printf("%p\n ", ptr);

}

Ans : Error

10) #include <stdio.h>

int main()

{

const int ary[4] = {1, 2, 3, 4};

int \*p;

p = ary + 3;

\*p = 5;

printf("%d\n", ary[3]);

}

Ans : 5

11) #include <stdio.h>

int main()

{

int ary[4] = {1, 2, 3, 4};

int \*p = ary + 3;

printf("%d\n", p[-2]); }

Ans : 2

12) #include <stdio.h>

void main()

{

char \*s= "hello";

char \*p = s + 2;

printf("%c\t%c", \*p, s[1]);

}

Ans : l,e

13) #include <stdio.h>

int main()

{

void \*p;

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

p = &a[3];

int \*ptr = &a[2];

int n = (int\*)p - ptr;

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

}

Ans : 1

14) #include<stdio.h>

int main()

{

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

**char \*p = a;**

for(i=0;i<5;i++)

printf(“%d “,\*p++);

}

Ans : 10 0 0 0 20

15) #include<stdio.h>

int main()

{

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

char \*p;

p=(char \*)a;

printf("%d\n",\*((int \*)p+4));

}

Ans : 50

16) #include <stdio.h>

int main()

{

double \*ptr = (double \*)100;

ptr = ptr + 2;

printf("%u\n", ptr);

}

As : 116

17) #include <stdio.h>

int main()

{

int i = 10;

void \*p = &i;

printf("%d\n", (int \*)\*p);

// **printf("%d\n", \*(int\*)p);**

return 0;

}

Ans : bold = 10, error other

18) #include <stdio.h>

int main()

{

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

void \*p = &a[1];

void \*ptr = &a[2];

int n = 1;

n = ptr - p;

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

}

Ans : 4

19) #include <stdio.h>

int main()

{

int \*p = (int \*)2;

int \*q = (int \*)3;

printf("%d", p + q);

}

Ans : Error

20) Which of the following operand can be applied to pointers p and q?

(Assuming initialization as int \*a = (int \*)2; int \*b = (int \*)3;)

a) a + b

b) a – b

c) a \* b

d) a / b

Ans: b)

21) Which of following logical operation can be applied to pointers?

(Assuming initialization int \*a = 2; int \*b = 3;)

a) a | b

b) a ^ b

c) a & b

d) None of the mentioned

Ans: d)

22) #include <stdio.h>

void main()

{

char \*s = "hello";

char \*n = "cjn";

char \*p = s + n;

printf("%c\t%c", \*p, s[1]);

}

Ans : Error

23) #include <stdio.h>

void m(int \*p)

{

int i = 0;

for(i = 0;i < 5; i++)

printf("%d\t", p[i]);

}

void main()

{

int a[5] = {6, 5, 3};

m(&a);

}

Ans : 6 5 3 0 0

24)#include <stdio.h>

void foo(int\*);

int main()

{

int i = 10,j=20,\*p = &i;

foo(p++);

foo(p);

}

void foo(int \*p)

{

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

}

Ans : 10 20

25)#include <stdio.h>

int main()

{

int i = 97, \*p = &i;

foo(&i);

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

}

void foo(int \*p)

{

int j = 2;

p = &j;

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

}

Ans : 2,97

26) #include<stdio.h>

int main()

{

const int ary[4] = {1,2,3,4};

int \*p = ary+3;

\*p = 5;

**ary[3] = 6;**

printf(“%d”,ary[3]);

}

Ans : Error “Read-only location”

27) #include<stdio.h>

int main()

{

char \***p = “Hai friends”, \***p1 = p;

while(\*p!='\0');

++\*p++;

printf(“%s %s\n”,p,p1);

}

Ans : Error ! P is a string...Read only location

28) #include<stdio.h>

int main()

{

char \*x = “**VECTOR**”;

printf(“%s\n”,x+3);

printf(“%d\n”+1,123456);

}

Ans : tor ,d

29) #include<stdio.h>

int main()

{

char a[ ] = “abcdefgh”;

int \*ptr = a;

printf(“%x %x\n”,ptr[0],ptr[1]);

}

# Ans : 64636261 68676665

30) #include<stdio.h>

#include<string.h>

int main()

{

char \*str = "hello, world\n";

char \*strc = "good morning\n";

strcpy(strc, str);

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

return 0;

}

Ans : Runtime error (Segmentation)

31)#include <stdio.h>

int main()

{

char \*str = "hello world";

char strc[50] = "good morning india\n";

strcpy(strc, str);

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

return 0;

}

Ans : Hello World

32) #include <stdio.h>

int main()

{

char \*str = "hello, world\n";

**str[5] = '.';**

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

return 0;

}

Ans : Array /string is constant pointer

33) #include <stdio.h>

int main()

{

char str[] = "hello, world";

str[5] = '.';

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

return 0;

}

Ans: hello.world

34) #include <stdio.h>

int main()

{

char \*str = "hello world";

char strary[] = "hello world";

printf("%d %d\n", sizeof(str), sizeof(strary));

return 0;

}

Ans : 4 12

35) #include <stdio.h>

int main()

{

char \*str = "hello world";

char strary[] = "hello world";

printf("%d %d\n", strlen(str), strlen(strary));

return 0;

}

Ans : 11 11

36) #include<stdio.h>

int main()

{

int a = 5,b = 4,c = 9;

\*(a>b ? &a : &b) = (a+b)>c;

printf(“%d %d\n”,a,b);

}

Ans : 0 4

37) Find the sizeof any datatype with out using sizeof operator. (Hint : Use pointers)

Ans : int \*p=0;

P++;

Printf(“%d”,p);

38) #include<stdio.h>

int main()

{

int i;

double a = 5.2;

char \*ptr;

ptr = (char \*)&a;

for(i=0;i<=7;i++)

printf(“%d\n”,\*ptr++);

return 0;

}

Ans :

39) Correct the following program.

#include<stdio.h>

int main()

{

void \*p; // int \*p;

int \*\*ptr;

int a = 129;

p = &a;

ptr = &p;

printf(“ p = %d p = %u &p = %u\n”, \*p, p, &p);

**}**

Ans : 129,1000,1000

40) #include<stdio.h>

main()

{

char a[20];

char \*p,\*q;

p=&a[0];

q=&a[10];

printf("%d %d\n", q-p, &q-&p);

}

Ans : 10 1

41) #include<stdio.h>

main()

{

int a=0x12345678;

void \*ptr;

ptr=&a;

printf("0x%x\n",\*(int \*)&\*&\*(char\*)ptr);

}

Ans : 0x12345678

42) #include<stdio.h>

main()

{

int a[5]={1,2,3,4,5};

int \*ptr=(int \*)(&a+1);

printf("%d %d\n",\*(a+1),\*(ptr-1));

printf("%d %d\n",\*(a+1),\*(ptr));

Ans : 2 5

2 G

43) #include <stdio.h>

void main()

{

char \*s= "hello";

char \*p = s;

printf("%c\t%c", 1[p], s[1]);

}

Ans : e e

44) #include<stdio.h>

main()

{

char a[]="abcde";

char \*p=a;

p++;

p++;

p[2]='z';

printf("%s",p);

}

Ans : cdz

45) #include<stdio.h>

main()

{  
 char a[]=”ABCDEFGHIJKLMNOPQRSTUVWXYZ”;

int i,\*p = a;

for(i=0;i<5;i++)  
 printf(“%d\t”,\*p++);

}

Ans : Some adresses

46) #include<stdio.h>

main()

{

char a[]=”abcdef”;

char \*ptr1 = a;

ptr1 = ptr1+(strlen(ptr1)-1);

printf(“%c”, --\*ptr1--);

printf(“%c”,--\*--ptr1);

printf(“%c”,--\*(ptr1--));

printf(“%c”,--\*(--ptr1));

printf(“%c”,\*ptr1);

}

Ans : ECBAA

47) #include<stdio.h>

int main()

{

char \*str1 = “Hello”;

char \*str2 = “Hai”;

char \*str3;

str3 = strcat(str1,str2);

printf(“%s %s\n”,str3,str1);

return 0;

}

Error : Constant pointer

48) #include<stdio.h>

int main()

{

char a[]=”Hello”;

char \*p=”Hai”;

a=”Hai”;

p=”Hello”;

printf(“%s %s\n”,a,p);

return 0;

}

Ans : Error

49) #include<stdio.h>

int main()

{

int i,n;

char \*x=”Alice”;

n=strlen(x);

\*x=x[n];

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

{

printf(“%s”,x);

x++;

}

printf(“%s\n”,x);

return 0;

}

Ans : Runtime error (Segmentation fault)

50) #include<stdio.h>

char \*str=”char \*str=%c%s%c;main(){printf(str,34,str,34);}”;

int main()

{

printf(str,34,str,34);

return 0;

}

Ans:

51) #include <stdio.h>

void f(char \*k)

{

k++;

k[2] = 'm';

printf("%c\n", \*k);

}

void main()

{

char s[] = "hello";

f(s);

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

}

Ans : e , hemlo

52) #include<stdio.h>

void t1(char \*q);

main()

{

char \*p;

p = “abcder”;

t1(p);

}

void t1(char \*q)

{  
 if(\*q!='r')

{

putchar(\*q);

t1(q++);

}

}

Ans : aaaaaa....... Reason : after printing a function stack frame is destroyed then again it strats from a and repeat it.

53) #include<stdio.h>

int main(){

int i;

float a=5.2;

char \*ptr;

ptr=(char \*)&a;

for(i=0;i<=3;i++)

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

return 0;

}

54) #include <stdio.h>

void foo( int[] );

int main()

{

int ary[4] = {1, 2, 3, 4};

foo(ary);

printf("%d ", ary[0]);

}

void foo(int p[4])

{

int i = 10;

p = &i;

printf("%d ", p[0]);

}

Ans : 10 1

55) #include <stdio.h>

void main()

{

int k = 5;

int \*p = &k;

int \*\*m = &p;

\*\*m = 10;

printf("%d%d%d\n", k, \*p, \*\*m);

}

Ans : 10 10 10

56) #include <stdio.h>

int main()

{

int a = 1, b = 2, c = 3;

int \*ptr1 = &a, \*ptr2 = &b, \*ptr3 = &c;

int \*\*sptr = &ptr1;

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

\*sptr = ptr2;

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

}

Ans : 1 and segmentation fault . We cant assign pointer address to an pointer

57) #include <stdio.h>

void main()

{

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

int \*p = a;

**int \*r = &p;**

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

}

Error : We cant assign pointer address to single pointer

58) #include <stdio.h>

int main()

{

int i = 97, \*p = &i;

foo(&p);

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

return 0;

}

void foo(int \*\*p)

{

int j = 2;

\*p = &j;

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

}

Ans : 2 2

59) #include <stdio.h>

void foo(int \*const \*p);

int main()

{

int i = 11;

int \*p = &i;

foo(&p);

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

}

void foo(int \***const \*p)**

{

int j = 10;

\*p = &j;

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

}

Ans : Error , read only location

60) #include <stdio.h>

void foo(int \*\*const p);

int main()

{

int i = 10;

int \*p = &i;

foo(&p);

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

}

void foo(int \*\*const p)

{

int j = 11;

\*p = &j;

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

}

Ans : 11 11

61) #include <stdio.h>

int \*f();

int main()

{

int \*p = f();

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

}

int \*f()

{

int \*j = (int\*)malloc(sizeof(int));

\*j = 10;

return j;

}

62) #include <stdio.h>

void main()

{

char \*a[10] = {"hi", "hello", "how"};

int i = 0;

for (i = 0;i < 10; i++)

printf("%s ", **\*(a[i]));**

}

Ans : Runtime Error : %s needs base adress

63) #include <stdio.h>

void main()

{

char \*a[10] = {"hi", "hello", "how"};

int i = 0, j = 0;

a[0] = "hey";

for (i = 0;i < 10; i++)

printf("%s ", a[i]);

}

Ans : Hey hello how (null) (null)...

64) #include <stdio.h>

void main()

{

char \*a[10] = {"hi", "hello", "how"};

printf("%d\n", sizeof(a));

}

Ans : 40

65) #include <stdio.h>

void main()

{

char \*a[10] = {"hi", "hello", "how"};

printf("%d\n", sizeof(a[1]));

}

Ans : 4 (pointer)

66) #include <stdio.h>

int main()

{

char a[2][6] = {"h**ello**", "hi"};

printf("%s ", \*a + 1);

return 0;

}

Ans : Ello

67) #include <stdio.h>

int main()

{

char \*a[2] = {"hello", "hi"};

printf("%s\n", \*(a + 1));

return 0;

}

Ans : hi

68) #include <stdio.h>

int main(int argc, char \*argv[])

{

while (argc--)

printf("%s\n", argv[argc]);

return 0;

}

69) #include <stdio.h>

int main(int argc, char \*argv[])

{

while (\*argv++ != NULL)

printf("%s\n", \*argv);

return 0;

}

70) #include <stdio.h>

int main(int argc, char \*argv[])

{

while (\*argv != NULL)

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

return 0;

}

71) #include<stdio.h>

int main(int sizeofargv, char \*argv[])

{

while(sizeofargv)

printf(“%s ”,argv[--sizeofargv]);

return 0;

} if i/p is sample friday tuesday sunday

72) #include<stdio.h>

int main()

{

char \*str[]={“Progs”,”Do”,”Not”,”Die”,”They”,”Croak!”};

printf(“%d %d”,sizeof(str),strlen(str[0]));

return 0;

}

Ans : 24 , 5

**73)** #include<stdio.h>

int main()

{  
 static char \*s[]={“black”,”white”,”pink”,”violet”};

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

p = ptr;

printf(“%s\n”,\*\*p+1);

return 0;

}

Ans : iolet

74) #include<stdio.h>

main()

{

char \*m[]={“jan”,”feb”,”mar”};

char d[][10] = {“sun”,”mon”,”tue”};

printf(“%s\t”,m[1]);

printf(“%s\t”,d[1]);

}

Ans : Feb , Mon

75) #include<stdio.h>

void fun(char \*\*);

int main()

{

char \*argv[]={“ab”,”cd”,”ef”,”gh”};

fun(argv);

return 0;

}

void fun(char \*\*p)

{

char \*t;

t=(p+=sizeof(int))[-1];

printf(“%s\n”,t);

}

76) #include <stdio.h>

void first()

{

printf("first");

}

void second()

{

first();

}

void third()

{

second();

}

void main()

{

void (\*ptr)();

ptr = third;

ptr();

}

77) #include <stdio.h>

int add(int a, int b)

{

return a + b;

}

int main()

{

int (\*fn\_ptr)(int, int);

fn\_ptr = add;

printf("The sum of two numbers is: %d\n", (int)fn\_ptr(2, 3));

}

78) #include <stdio.h>

int mul(int a, int b, int c)

{

return a \* b \* c;

}

void main()

{

int (\*function\_pointer)(int, int, int);

function\_pointer = mul;

printf("The product of three numbers is:%d",

function\_pointer(2, 3, 4));

}

79) #include<stdio.h>

int fun(int (\*)());

int main()

{

fun(main);

printf(“Hi\n”);

return 0;

}

int fun(int (\*p)())

{

printf(“Hello\n”);

return 0;

}

80) #include<stdio.h>

int main()

{

char \*p = “Hello World”;

printf(p);

}

-------------------------------------------------------- END --------------------------------------------------------

Dear Students, if any mistakes found, Kindly inform to me.

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