



HITBULLSEYE

LEVEL 1: LPU TECHNICAL TEST 02

Question No: 1

DIRECTIONS for the question: Mark the best option:
How many # 's do the following statements print?

```
for (int m=0, n=10; n-m > 5; ++m, - -n)
    System.out.print(" # ");
```

- ☐ 0
- ☐ 1
- ☐ 2

• 3

Question No: 2

DIRECTIONS for the question: Mark the best option:
The following program

```
public class TestFirstApp {  
    public static void main(String[] args) {  
        int wer = 0x123;  
        System.out.println (wer);  
    }  
}
```

outputs

- ☐ 123
- ☐ 0123
- ☐ an unpredictable garbage value
- 291

Question No: 3

DIRECTIONS for the question: Mark the best option:
What is the output of the following program?

```
public class TestFirstApp {  
    public static void main(String[] args) {  
        int a = 3;  
        System.out.println (++a + ++a * ++a);  
    }  
}
```

- ☐ 23
- ☐ 17
- ☒ 34
- ☐ 26

Question No: 4

DIRECTIONS for the question: Mark the best option:
What is the output of the following program?

```
#include
int funcf (int x);
int funcg (int y);
main()
{
    int x = 5, y = 10, count;
    for (count = 1; count <= 2; ++count)
    {
        y += funcf (x) + funcg(x);
        printf("%d",y);
    }
}
funcf(int x)
{
    int y;
    y = funcg(g);
    return (y);
}
funcg(int x)
{
    static int y = 10;
```

```
y += l;  
return (y + x);  
}
```

- ☒ 43 80
- ☐ 42 74
- ☐ 33 37
- ☐ 32 32

Question No: 5

DIRECTIONS for the question: Mark the best option:
Consider the following C program:

```
#include  
typedef struct  
{  
    char *a;  
    char *b; }t;  
void f1(t s); void f2(t *p); main()  
{  
    static t s = {"A", "B"};  
    printf("%s %s\n", s.a, s.b);  
    f1(s);  
    printf("%s %s\n", s.a, s.b);  
    f2(&s);  
}  
void f1(t s)  
{  
    s.a = "U";  
    s.b = "V"  
    printf("%s %s\n", s.a, s.b);
```

```

return;
}
void £2(t *p)
{
p -* a = "V";
p -^ b = "W"
printf("%s %s\n", p -> a, p -> b);
return; }

```

What is the output generated by the program?

- ☐ A B
- ☐ U V
- ☐ V W
- ☐ V W
- ☒ A B
- ☒ U V
- ☒ A B
- ☒ V W
- ☐ A B
- ☐ U V
- ☐ U V
- ☐ V W
- ☐ V W
- ☐ U V

Question No: 6

DIRECTIONS for the question: Mark the best option:

Consider the following C function

```
int f(int n)
{
static int i =1;
if(n >= 5)
return n;
n = n+i;
i++;
return f(n);
}
```

The value returned by f(1) is

- ☐ 5
- ☐ 6
- ☒ 7
- ☐ 8

Question No: 7

DIRECTIONS for the question: Mark the best option:

Consider the following C program

```
main()
{
int x, y, m, n;
scanf("%d%d", &x,&y);
/* Assume x > 0 and y > 0 */
m = x; n = y;
while(m != n)
{
if(m>n)
```

```
m = m - n;  
else  
    n = n - m;  
}  
printf("%d",n);  
}
```

The program computes

- ☐ $x + y$ using repeated subtraction
- ☐ $x \bmod y$ using repeated subtraction
- ☒ the greatest common divisor of x and y
- ☐ the least common multiple of x and y

Question No: 8

DIRECTIONS for the question: Mark the best option:

Consider the following C program segment:

```
char p[20];  
char *s = "string";  
int length = strlen(s);  
int i;  
for (i = 0; i < length; i++)  
    p[i] = s[length - i];  
printf("%s", p);
```

The output of the program is?

- ☐ gnirts
- ☒ string
- ☐ gnirt
- ☐ no output is printed

Question No: 9

DIRECTIONS for the question: Mark the best option:

Consider the following C-program

```
void foo (int n, int sum) {  
    int k = 0, j = 0;  
    if (n == 0) return;  
    k = n % 10; j = n/10;  
    sum = sum + k;  
    foo (j, sum);  
    printf ("%d,",k);  
}  
int main() {  
    int a = 2048, sum = 0;  
    foo(a, sum);  
    printf("%d\n", sum);  
}
```

What does the above program print?

- ☐ 8, 4, 0, 2, 14
- ☐ 8, 4, 0, 2, 0
- ☐ 2, 0, 4, 8, 14
- ☒ 2, 0, 4, 8, 0

Question No: 10

DIRECTIONS for the question: Mark the best option:

The following C function takes two ASCII strings and determines whether one is an anagram of the other.

An anagram of a string s is a string obtained by

permuting the letters in s.

```
int anagram (char *a, char *b)
```

```
{
```

```
int count [128], j;
```

```
for (j = 0; j < 128; j++) count[j] = 0;
```

```
j = 0;
```

```
while (a[j] && b[j]) {
```

```
A;
```

```
B;
```

```
}
```

```
for (j = 0; j < 128; j++) if (count [j]) return 0;
```

```
return 1;
```

```
}
```

Choose the correct alternative for statements A and B

- ☐ A : count [a[j]]++ and B : count[b[j]]–
- ☐ A : count [a[j]]++ and B : count[b[j]]++
- ☐ A : count [a[j++]]++ and B : count[b[j]]–
- ☒ A : count [a[j]]++and B : count[b[j++]]–

Question No: 11

DIRECTIONS for the question: Mark the best option:

What is the output printed by the following program?

```
# include
```

```
int f(int n, int k) n
```

```
{
```

```
if (n== 0)
```

```
return 0;
```

```
else if (n% 2)
```

```
return f(n/2, 2*k)+k;
```

```

else return f(n/2, 2*k) - k;
}
int main()
{
    printf("%d",f(20,1));
    return 0;
}

```

- ☐ 5
- ☐ 8
- ☒ 9
- ☐ 20

Question No: 12

DIRECTIONS for the question: Mark the best option:
Which one of the choices given below would be printed when the following program is executed?

```

#include
struct test
{
    int i;
    char *c;
}
st[] = {5, "become", 4, "better", 6, "jungle", 8, "ancestor",
7, "brother"};
main ()
{
    struct test *p = st;
    p += 1;
    ++p → c;
}

```

```

printf("%s,", p++→c);
printf("%c,", *++p → c);
printf("%d,", p[0].i);
printf("%s \n", p → c);

}

```

- ☐ jungle, n, 8, nclastor
- ☒ etter, u, 6, ungle
- ☐ cetter, k, 6, jungle
- ☐ etter, u, 8, ncestor

Question No: 13

DIRECTIONS for the question: Mark the best option:
Which one of the choices given below would be printed when the following program is executed?

```

#include
int a1[] = {6, 7, 8, 18, 34, 67};
int a2[] = {23, 56, 28, 29};
int a3[] = {-12, 27, -31};
int *x[] = {a1, a2, a3};
void print(int *a[])
{
    printf("%d,", a[0][2]);
    printf("%d,", *a[2]);
    printf("%d,", *++a[0]);
    printf("%d,", *(++a)[0]);
    printf("%d\n", a[-1][+1]);
}
main()

```

```
{  
print(x);  
}
```

- ☒ 8, -12, 7, 23, 8
- ☐ 8, 8, 7, 23, 7
- ☐ -12, -12, 27, -31, 23
- ☐ -12, -12, 27, -31, 56

Question No: 14

DIRECTIONS for the question: Mark the best option:

Consider the C program given below:

```
#include  
int main( )  
{  
int sum = 0, maxsum = 0, i, n = 6;  
int a( ) = {2, -2, -1, 3, 4, 2};  
for(i = 0; i < n; i++)  
{  
if(i == 0 || a[i] < 0 || a[i] < a[i - 1])  
{  
if(sum > maxsum)  
maxsum = sum;  
sum = (a[i] > 0) ? a[i] : 0;  
}  
else sum += a[i];  
}  
if(sum > maxsum) maxsum = sum;  
printf ("%d\n", maxsum);  
}
```

What is the value printed out when this program is executed?

- ☐ 9
- ☐ 8
- ☒ 7
- ☐ 6

Question No: 15

Consider the program below in a hypothetical language which allows global variables and a choice of call by reference or call by value methods of parameter passing:

```
int i ;
program main()
{   int j = 60;
    i = 50;
    call f(i, j);
    print i, j;
}
procedure f(x, y)
{
    i = 100;
    x = 10;
    y = y + i;
}
```

Which one of the following options represents the correct output of the program for the two parameter passing mechanisms?

- ☐ Call by value : i = 70, j = 10; Call byreference : i = 60, j = 70
- ☐ Call by value : i = 50, j = 60; Call byreference : i = 50, j = 70
- ☐ Call by value : i = 10, j = 70; Call byreference : i = 100, j = 60
- ☒ Call by value : i = 100, j = 60; Call byreference : i = 10, j = 70

Question No: 16

DIRECTIONS for the question: Mark the best option:
What is the output printed by the following C code?

```
#include
int main( )
{
    char a[6] = "world";
    int i, j;
    for (i = 0, j = 5; i < j; a[i++] = a [j - -]);
    printf("%s\n",a);
}
```

- ☐ dlrow
- ☒ Null string
- ☐ dlrlld
- ☐ worow

Question No: 17

DIRECTIONS for the question: Mark the best option:
Consider the C program below. What does it print?

```

#include
#define swap1 (a,b) tmp = a; a = b; b =tmp;
void swap2 (int a, int b)
{
    int tmp;
    tmp = a; a = b; b = tmp;
}
void swap3 (int*a, int*b)
{
    int tmp;
    tmp = *a; *a = *b; *b = tmp;
}
int main ()
{
    int num1 = 5, num2 = 4, tmp;
    if (num1 < num2) {swap1 (num1, num2);}
    if (num1 < num2) {swap2 (num1 + 1, num2);}
    if (num1 >= num2) {swap3 (&num1, &num2);}
    printf ("%d, %d", num1, num2);
}

```

- ☐ 5, 5
- ☐ 5, 4
- ☒ 4, 5
- ☐ 4, 4

Question No: 18

DIRECTIONS for the question: Mark the best option:
 Consider the C program given below. What does it print?
 # include

```

int main ()
{
    int i, j;
    int a [8] = {1, 2, 3, 4, 5, 6, 7, 8};
    for(i = 0; i < 3; i++)
    {
        a[i] = a[i] + 1;
        i++;
    }
    i--;
    for (j = 7; j > 4; j--) {
        int i = j/2;
        a[i] = a[i] - 1;
    }
    printf ("%d, %d", i, a[i]);
}

```

- ☐ 2, 3
- ☐ 2, 4
- ☒ 3, 2
- ☐ 3, 3

Question No: 19

DIRECTIONS for the question: Mark the best option:

A C program is given below:

```
# include
```

```
int main ( )
```

```
{
```

```
int i, j;
```

```
char a [2] [3] = {{ 'a', 'b', 'c'}, { 'd', 'e', 'f' }};
```



```

char b [3] [2];
char *p = *b;
for (i = 0; i < 2; i++) {
    for (j = 0; j < 3; j++) {
        *(p + 2*j + i) = a [i] [j];
    }
}
}

```

What should be the contents of the array b at the end of the program?

- ☐ ab
- ☐ cd
- ☐ ef
- ☒ a d
- ☒ b e
- ☒ c f
- ☐ a c
- ☐ e b
- ☐ d f
- ☐ a e
- ☐ d c
- ☐ b f

Question No: 20

DIRECTIONS for the question: Mark the best option:

What does the following program print?

```
#include
```

```
void f(int *p, int *q) {
```

```
    p=q;  
    *p=2;  
}
```

```
int i=0, j=1;
```

```
int main() {  
    f(&i, &j);  
    printf("%d %d\n", i,j);  
    return 0;  
}
```

- ☐ 2 2
- ☐ 2 1
- ☐ 0 1
- ☒ 0 2

Question No: 21

DIRECTIONS for the question: Mark the best option:
Consider the following recursive C function that takes two arguments.

```
unsigned int foo(unsigned int n, unsigned int r)  
{  
    if(n>0) return (n%r+foo(n/r,r));  
    else return 0;
```

What is the return value of the function foo when it is called as foo(345,10) ?

- ☐ 345
- ☒ 12

- ☐ 5
- ☐ 3

Question No: 22

DIRECTIONS for the question: Mark the best option:
Consider the following recursive C function that takes two arguments.

```
unsignedint foo(unsigned int n, unsigned int r)
{
if(n>0) return (n%r+foo(n/r,r));
else return 0;
}
```

What is the return value of the function foo when it is called as foo (513,2)?

- ☐ 9
- ☐ 8
- ☐ 5
- ☒ 2

Question No: 23

DIRECTIONS for the question: Mark the best option:
Consider the following program in C language:

```
#include
main ( )
{
int i;
```

```
int *pi = &i;
scanf("%d",pi);
printf("%d\n", i+5);
}
```

Which one of the following statements is TRUE?

- ☐ Compilation fails.
- ☐ Execution results in a run-time error.
- ☐ On execution, the value printed is 5 more than the address of variable i.
- ☒ On execution, the value printed is 5 more than the integer value entered.

Question No: 24

DIRECTIONS for the question: Mark the best option:

Let a be an array containing n integers in increasing order. The following algorithm determines whether there are two distinct numbers in the array whose difference is a specified number $S > 0$.

```
i = 0;
j = 1;
while (j < n)
{
    if (E) j++;
    else if (a[j] - a[i] == S) break;
    else i++;
}
if (j < n)
```

```
    printf("yes");  
else  
    printf("no");
```

Choose the correct expression for E.

- ☐ $a[j] - a[i] > S$
- ☒ $a[j] - a[i] < S$
- ☐ $a[i] - a[j] \leq S$
- ☐ $a[i] - a[j] > S$

Question No: 25

DIRECTIONS for the question: Mark the best option:
Consider the following C function in which size is the number of elements in the array E:

```
int MyX (int *E, unsigned int size)  
{  
    int Y = 0;  
    int Z;  
    int i, j, k;  
    for(i = 0; i < size; i++)  
        Y = Y + E[i];  
    for(i=0; i < size; i++)  
        for(j = i; j < size; j++)  
        {  
            Z = 0;  
            for(k = i; k <= j; k++)  
                Z = Z + E[k];  
            if(Z > Y)
```

```

        Y = Z;
    }
    return Y;
}

```

The value returned by the function MyX is the

- maximum possible sum of elements in any sub-array of array E.
- maximum element in any sub-array of array E.
- sum of the maximum elements in all possible sub-arrays of array E.
- the sum of all the elements in the array E.

Question No: 26

DIRECTIONS for the question: Mark the best option:

Let Abe a square matrix of size $n \times n$. Consider the following pseudocode. What is the expected output?

```

C=100;
for i=1 to n do
    for j=1 to n do
    {
        Temp = A[i][j]+C;
        A[i][j] = A[j][i];
        A[j][i] = Temp -C;
    }
for i=1 to n do
    for j=1 to n do
        Output (A[i][j]);

```

- **The matrix A itself**
- Transpose of the matrix A
- Adding 100 to the upper diagonal elements and subtracting 100 from lower diagonal elements of A
- None of the above

Question No: 27

DIRECTIONS for the question: Mark the best option:
What will be the output of following c++ code?

```
#include
using namespace std;
const int SIZE = 10;
class safe
{
    private:
    int arr[SIZE];
    public:
    safe()
    {
        register int i;
        for (i = 0; i < SIZE; i++)
        {
            arr[i] = i;
        }
    }
    int &operator[](int i)
    {
        if (i > SIZE)
```

```

        {
            cout << "Index out of bounds";
            return arr[0];
        }
        return arr[i];
    }
};
int main()
{
    safe A;
    cout << A[5];
    cout << A[12];
    return 0;
}

```

- ☐ 4
- ☐ 5
- ☐ 1Index out of bounds1
- ☒ 5Index out of bounds0

Question No: 28

DIRECTIONS for the question: Mark the best option:
What will be the output of the given c++ code?

```

#include
using namespace std;
class sample1
{
    float i, j;
};

```



```

class sample2
{
    int x, y;
    public:
    sample2 (int a, int b)
    {
        x = a;
        y = b;
    }
    int result()
    {
        return x + y;
    }
};
int main ()
{
    sample1 d;
    sample2 * padd;
    padd = (sample2*) &d;
    cout<< result();
    return 0;
}

```

- ☐ Runtime error
- ☐ 20
- ☐ Some random number
- ☒ Both Option A and C

Question No: 29

DIRECTIONS for the question: Mark the best option:

What will be the output of following C language code?

```
#include
struct student
{
    char *name;
};
struct student s;
struct student fun(void)
{
    s.name = "newton";
    printf("%s ", s.name);
    s.name = "alan";
    return s;
}
void main()
{
    struct student m = fun();
    printf("%s ", m.name);
    m.name = "turing";
    printf("%s ", s.name);
}
```

- ☐ alan newton newton
- ☒ newton alan alan
- ☐ alan alan newton
- ☐ newton alan turing

Question No: 30

DIRECTIONS for the question: Mark the best option:

What will be the output of following c code?

```
#include
enum example {a = 1, b, c};
enum example example1 = 2;
enum example answer()
{
    return example1;
}
```

```
int main()
{
    (answer() == a)? printf("yes"): printf("no");
    return 0;
}
```

- ☐ yes
- ☒ **no**
- ☐ 2
- ☐ error