Programming in C

Strings

DPP-01

[NAT]

1. Consider the following codes P and Q as:

P : char* p ="GATEWallah";
p[5]= 'A';
printf("%s",p);

Q: char* p ="GATEWallah";
char* q = p;
q[5]= 'A';
printf("%s",q);

The number of INCORRECT codes is/are_____.

[MCQ]

2. P : char s1[]="GATE";
char s2[]="GATE";
if(s1==s2) printf("YES");
else
printf("NO");

Q : char s1[]="GATE";
char s2[]="GateWallah";
if(*s1==*s2) printf("YES");
else
printf("NO");

The outputs are-

(a) P = YES Q = YES
(b) P = YES Q = NO
(c) P = NO Q = YES
(d) P = NO Q = NO

[MCQ]

3. P : char s[20];
printf("Enter your GATE stream with year: \n");
scanf("%s",s);
printf("%s",s);

Q : char s[20];
printf("Enter your GATE stream with year: \n");
gets(s);
printf("%s",s);

If the input string is "CS 2023", the outputs are-

(a) P=CS 2023 Q = CS 2023
(b) P=CS Q = CS
(c) P=CS 2023 Q = CS
(d) P = CS Q = CS 2023

[MCQ]

4.
```
#include<stdio.h>
#include<string.h>
int main()
{
  char s[20]="GATEWallah";
  printf("%s",s+4);
  s[4]=0;
  printf("%s",s);
  return 0;
}
```

The output is-

(a) WallahGATE
(b) EWallahGAT
(c) WallahGATE0allah
(d) EWallahGAT0allah

[MCQ]

5.
```
#include<stdio.h>
#include<string.h>
int main()
{
  char s[20]="GATEWallah2023";
  s[10]='0';
  printf("%s",s+s[3]-s[1]);
  return 0;
}
```

The output printed is-

(a) Wallah0 (b) Wallah2023
(c) Wallah0023 (d) Wallah

[MCQ]

6.
```
#include<stdio.h>
#include<string.h>
void f(char *p)
{
   static int q=2;
  q=q+3;
  p[q]+=2;
}
int main()
{
  char s[20]="GATEWallahbesthai";
  int i=0;
  for(i=0;i<3;i++){
 f(s);
  }
  printf("%s",s);
  return 0;
}
```
The output string printed is-

(a) GATEWcllchbgsthai

(b) GATEWcllbhbgsthai

(c) GATEWcllchbesthai

(d) GATEWcllchbesthai

[MCQ]

7.
```
#include<stdio.h>
#include<string.h>
void f(char *p){
   if(*p!=0){
     printf("%c", *p);
     f(p+1);
    }
    printf("%c", *p);
}
int main()
{
 char s[5]="GATE";
 f(s);
 return 0;
}
```
The output is-

(a) GATEGATE

(b) ETAGGATE

(c) ETAGETAG

(d) GATEETAG

[NAT]

8.
```
#include<stdio.h>
#include<string.h>
int main()
{
 int a=1;
 char b[]="GATE2024";
 char c[]="GATE2024";
 int d=strcmp(b,c);
 if(d==0)
 a=printf("GATEWallah");
 printf("%d",a);
 return 0;
}
```
The value of a is_____.

Answer Key

1. **(2)**
2. **(c)**
3. **(d)**
4. **(a)**
5. **(c)**
6. **(a)**
7. **(d)**
8. **(10)**

Hints and solutions

1. (2)

char*p = "GATEWallah";

Memory is allocated to "GATEWallah" in static/ read only memory. So, its content cannot be updated

p[5] = 'A'

It is not allowed as 'p' is the only entry point to the string constant.

∴ Both P and Q are not valid.

2. (c)

P: if (s1 = = s2) // It is comparing the base addresses of two different Strings.

→ false

∴ else part will be executed

⇓

No is printed

Q:

s1: G A T E (100)

s2: G A T E W a l l a h (200)

if(*s1 = = *s2) ⇒ if (*100 = = *200)

* → value at

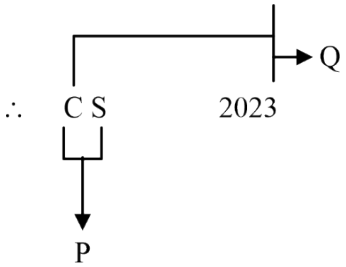
⇓

G = = G

→ TRUE

3. (d)

scanf() halts reading as soon as it encounters whitespace. gets() ignores the whitespace and stops reading when new-line is found.



∴ Output of P: CS

Output of Q: CS 2023

4. (a)

	100	101	102	103	104	105	106	107	108	109	110
S:	G	A	T	E	W	a	l	l	a	h	\0

\0

printf("%s", s + 4); // Wallah

↓

104

s[4] = 0; //*(100 +4) = 0 where 0 is the ASCll of NULL character.

print("%s", s); // It prints the string till it encounters first NULL;

⇒ Output is: WallahGATE

5. (c)

	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114
S:	G	A	T	E	W	a	l	l	a	h	2	0	2	3	\0

0

s[10] = '0'; // Here '0' is the numeri 0

printf("%s", s+s[3]-s[1]);

⇓

100 + 69 − 65 = 104

∴ Output is: Wallah0023

6. (a)

S:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
G	A	T	E	W	a	l	l	a	h	b	e	s	t	h	a	i

starting address of S: 100

i	0	i	1
f(100)		f(100)	
p	100	p	100
q	2 5	q	5 8
p[5] + = 2; // p[5] = c		p[8] + = 2; // p[8] = c	

i | 2

f(100)

p | 100

q | 8 11

p[11] + = 2; // p[11] = g

Output: G A T E W c l l c h b g s t h a i

7. (d)

G	A	T	E	\0
100	101	102	103	104

f(100) *100==G!=0→True **(1)** printf( ) executed → G f(101) **(8)** printf( ) executed → G	f(101) *101==A!=0→True **(2)** printf( ) executed → A f(102) **(7)** printf( ) executed → A
f(102) *102==T!=0→True **(3)** printf( )executed → T f(103) **(6)** printf( ) executed → T	f(103) *103==E!=0→True **(4)** printf( ) executed →E f(104)→NULL ispresent **(5)** printf( )executed→E

∴ Output is: GATEETAG

8. (10)

```
int a=1;
char b[]="GATE2024";
char c[]="GATE2024";
int d=strcmp(b,c);
//When the strings are equal, strcmp returns 0.
if(d==0)
a=printf("GATEWallah");
//printf() returns the number of characters it printed.
printf("%d",a);//10
return 0;
```