Pointers

Q1 What will be the output of the program?

```c
#include <stdio.h>
int main()
{
    int a=5,b=10,c=15,s;
    int *px,*py,*pz,*ps;
    px=&a; py=&b; pz=&c;
    ps=&s;
    *ps=*px;
    if (*ps<*py) *ps=*py;
    if (*ps<*pz) *ps=*pz;
    printf("%d\n",s);
    return 0;
}
```
A. 5
B. 10
C. 15
D. error

Answer: (C) ✓

Q2 What will be the output of the program?

```c
#include <stdio.h>
int main()
{
    int *p1,*p2,*p,a=5,b=9;
    p1=&a;
    p2=&b;
    if (a<b)
    { p=p1; p1=p2; p2=p; }
    printf("%d,%d\n",*p1,*p2);
    return 0;
}
```
A. 9,9
B. 9,5
C. 5,5
D. 5,9

Answer: (B) ✓

Q3 What will be the output of the program?

```c
#include <stdio.h>
```

```
int main()
{
    int i=90,j=3;
    int *p;
    p=&i;
    *p=2;
    (*p)++;            3
    printf("%d ",*p);
    (*p)--;
    printf("%d\n",*p); 2
    return 0;
}
```
A. 2 2
B. 2 3
C. 3 2
D. 3 3

Answer: (C)✓

Q4 What will be the output of the program?

```
#include <stdio.h>
int main()
{
    int a,b,k=4,m=6,*p1=&k,*p2=&m;
    a=*p1;   4
    b=(*p1)/(*p2)+7;
    printf("%d,", a);
    printf("%d\n", b);
    return 0;
}
```

$$(4/6)+7 = 0+7 = 7$$

A. -1,5 ✗
B. 1,6 ✗
C. 4,7 ✓
D. 4,10

Answer: (C) ✓

Q5 What will be the output of the program?

```
#include <stdio.h>
int b=2;
int fun(int *a);
int main()
{
    int a=2,res=2;
    res += fun(&a);
```

2 + 4

```
    printf("%d\n",res);
    return 0;
}
int fun(int *a)
{
    b+=*a;
    return b;
}
A. 4
B. 6
C. 8
D. 10

Answer: ( B )
```

Handwritten annotations: 2 above `*a`; `2`, `2` above `b+=*a`; `4` next to `return b`; blue B in answer with red checkmark.

Q6 What will be the output of the program?

```
#include <stdio.h>
void fun(int *px,int *py);
int main()
{
    int a,b;
    a=5; b=10;
    fun(&a,&b);
    printf("%d %d\n",a,b);
    return 0;
}
void fun(int *px,int *py)
{
    int temp;
    temp=*px; *px=*py; *py=temp;
}
A. 5 10
B. 10 5
C. 5 15
D. 15 5

Answer: ( B )
```

Handwritten annotations: `5`, `10` above `*px`, `*py`; `5`, `10`, `5` below.

Q7 What will be the output of the program?

```
#include <stdio.h>
void sub(int x, int y, int *z);
int main()
{
    int a,b,c;
    sub(10,5,&a);
```

```
    sub(7,a,&b);
    sub(a,b,&c);
    printf("%d,%d,%d\n",a,b,c);
    return 0;
}
void sub(int x, int y, int *z)
{
    *z=y-x;
}
```
*Handwritten annotations: 10 above x, 5 above y, &a above *z*

A. -5,-7,-12
B. -7,-12,-7 ✗
C. -5,-12,-7
D. -12,-5,-7 ✗

Answer: (C)

Q8 What will be the output of the program?

```
#include <stdio.h>
void fun(int *n);
int main()
{
    int a=100;
    fun(&a);
    printf("\n");
    return 0;
}
void fun(int *n)
{
    while ( (*n)-- );
    printf("%d", ++(*n));
}
```
*Handwritten annotations: 100 above *n; "while loop stops when *n=0"; (*n)-- ⇒ -1 ⇒ 0*

A. 100
B. 99
C. 1
D. 0

Answer: (C) ✗ D

Q9 What will be the output of the program?

```
#include <stdio.h>
void fun(char *a, char *b);
int main()
{
    char c1='A',c2='a',*p1,*p2;
    p1=&c1; p2=&c2; fun(p1,p2);
```

```
    printf("%c%c\n",c1,c2);
    return 0;
}
void fun(char *a, char *b)
{
    a=b;
    (*a)++;
}
A. Ab
B. aa
C. Aa
D. Bb

Answer: ( C )
```

Q10 Assume the input values 1,3,5 are entered during program execution, what will be the output of the program?

```
#include <stdio.h>
int s(int *p);
int main()
{
    int a=0,i,*p,sum;
    p=&a;
    for (i=0; i<3; i++)
    {
        scanf("%d",p);
        sum=s(p);
        printf("%d ",sum);
    }
    return 0;
}
int s(int *p)
{
    int sum=10;
    sum=sum+*p;
    return (sum);
}
A. 10 12 14
B. 11 13 15
C. 12 14 16
D. 13 15 17

Answer: ( B )
```