

```
51. #define swap1(a, b)
      a=a + b; b=a - b; a=a - b;

void main( )
{
    int x=5,y=10;
    swap1(x,y);
    printf("%d %d \n", x,y);
    swap2(x,y);
    printf("%d %d \n", x,y);

}
```

```
int swap2(int a, int b)
{
    int temp;
    temp=a;
    b=a;
    a=temp;
}
```

Not return
(a, b)

What is the output of the above program?

- (a) 10 5
- 5 10
- (c) 5 10
- 10 5

- (b) 10 5
- 10 5
- (d) 5 10
- 5 10

(a) ~~51~~ #define swap(x,y)

$a = a + b;$ $b = a - b;$ $a = a - b;$

Void main ()

{ int x = 5, y = 10;

swap (x,y)

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

swap (x,y);

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

}

int swap2(int a, int b)

{ int temp = a; b = a; a = temp; }

Note :- swap2() not return(a,b) - Teacher's Signature So print (x,y)

$a, b \Rightarrow b, a // Swap$

$a = 5, b = 10$

$t = 4 \div 5$

$b = a = 5$

$a = t = 5$

Input :- 5, 10

Output:- 10 5

5 10 Arg

52. void myfunc(int x)
{
 if(x>0)
 myfunc(--x);
 printf("%d", x);
}

What is the output of the f(4)?

- (a) 2, 3, 4, 5, 5
- (b) 4, 3, 2, 1, 0
- (c) 0, 1, 2, 3, 4
- (d) 0, 0, 1, 2, 3

d) ~~52~~ void myfunc (int x)

if ($x > 0$)

myfunc ($-x$) ;

printf ("%.d", x);

4

f(4) = ?

$x = 4$

~~f(4)~~

$x = 3$

$x = 3$

$f(3)$

$x = 2$

$x = 2$

$f(2)$

$x = 1$

$x = 1$

$f(1)$

$x = 0$

$n = 0$

print x

00123

Ans :-

d

0.0123

53. Consider the following C code

```
int i=0;  
main()  
{  
    int i=1;  
    printf("%d",i);  
    {  
        int i=2;  
        printf("%d",i);  
        {  
            i=i+1;  
            printf("%d",i);  
        }  
        printf("%d",i);  
    }  
    printf("%d",i);  
}
```

Q) 53

int i = 0;
main()

→ \$ int i = 1;

→ printf("%d", i);

→ \$ i = 2;

→ printf("%d", i);

→ \$ i = i + 1;

→ printf("%d", i);

→ 1

→ 2

i = 2 + 1 = 3

→ 3

→ 3

→ 1

Ans - 1, 2, 3, 3, 2

54. Consider the following program segment of a hypothetical high – level programming language.

x, y : integer;
Procedure A(z : integer)

x : integer;

begin

x = 1;

B ;

z = x;

end;

Procedure B()

begin

x = x+1;

end;

begin {main}

x = 5;

A (y);

write (y);

end;

Assuming the parameter 'z' is passed by reference and the language uses dynamic scoping, what is the output of the program.

(a) 5

(b) 6

(c) 7

(d) 2

<p>(d) Q4 $x, y : \text{int};$</p> <hr/> <p>Procedure A ($z : \text{int}$)</p> <p>$x : \text{int};$</p> <p>begin</p> <p style="margin-left: 40px;">$n := 1; B; z := x;$</p> <p>end</p> <p>Procedure B()</p> <p>begin</p> <p style="margin-left: 40px;">$x = x + 1$</p> <p>end;</p> <p>begin</p> <p style="margin-left: 40px;">{ main }</p> <p style="margin-left: 40px;">$x = 5; A(y);$</p> <p>print(y);</p> <p>end;</p>	<p>'z' Passed by Value</p> <p>Dynamic Scoping</p> <p>$x = 1$</p> <p>$B() \{ n = 1 + 1 = 2 \}$</p> <p>$n = 5;$</p> <p>$A(y) \{ x = 1; B() \{ x = 1 + 1 = 2 \} \}$</p> <p>print(y) = <u>2</u></p> <p>Teacher's Signature</p>
---	--

55. What is the output of the following C

program:

```
int f(int x, int xy, int xxz)
```

```
{
```

```
    int k, m;
```

```
    **z += 2;
```

```
    m = **z;
```

```
    *y += 1;
```

```
    k = *y;
```

```
    x += 5;
```

```
    return (x+k+m);
```

```
}
```

```
main( )
```

```
{
```

```
    int i = 10, *b, **a, t ;
```

```
    b = &i;
```

```
    a = &b;
```

```
    t= f(i,b,a);
```

```
    printf("%d", t);
```

```
}
```

(a) 32

(b) 35

(c) 38

(d) 40

(d) ~~Q5~~-5

Program :-

int f(int x, int y, int xyz)

{

}

main()

{

i = 10; *b, **a, &t;

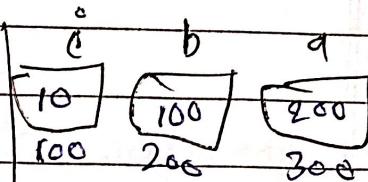
b = &i;

a = &b;

t = f(i, b, a);

printf("%d", t);

}



t = f(i, b, a);

f(i, b, a) \rightarrow f(10, 100, 200)

{

int k, m;

**z = **z + 2 = 10 + 2 = 12

m = **z = 12

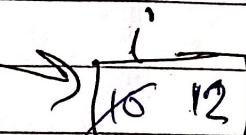
*y = *y + 1 = 12 + 1 = 13

k = *y = 13

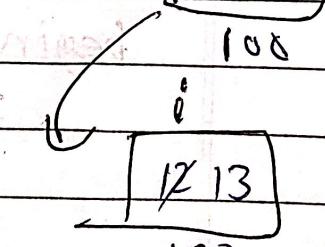
n = x + 5 = 10 + 5 = 15

*y = b

**z = a



return (15 + 13 + 12) = 40



Ans \rightarrow ①

3890

Teacher's Signature

56. Consider the following ‘C’ program segment:

```
char *c[ ]={“MOCKGATE”, “GATE2012”};  
char **P;  
P = c;  
printf(“%S”, P[1] + 2);
```

What is the output of the program?

- (a) MOCKGATE
- (b) CKGATE
- (c) E2012
- (d) TE2012

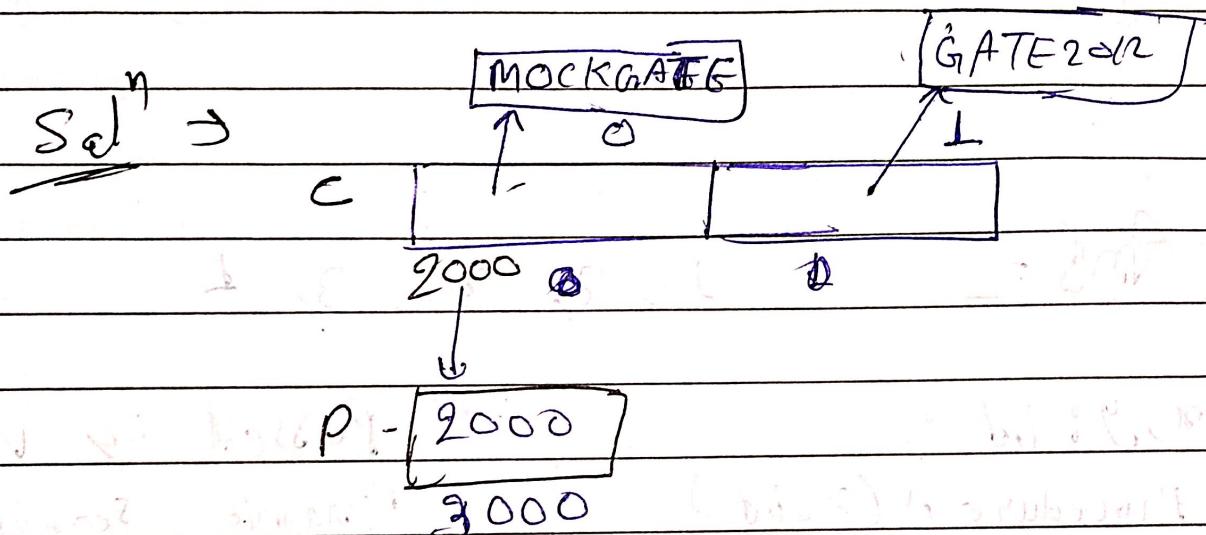
Q 56

char *c[] = {"MOCKGATE", "GATE2012"};

char **p;

p = c;

printf("%s", p[1] + 2);



$$P = C[1]$$

Ans P (d) $P[1] + 2 = TE2012$

57. void abc(int x, int y)

{

 printf("%d %d", x,y);

}

void main()

{

 int a;

 a = 10;

 abc(++a, a++);

 printf("%d",a);

}

The output of the above program is

(a) 12, 10, 12

(b) 11, 11, 12

(c) 11, 12, 12

(d) 12, 12, 12

Q) 573

Void abc (int a, int y)

{

 printf ("%d %d", x, y);

}

a = 10

abc (++a, a++)

Void main ()

int a;

a = 10;

abc (++a, a++);

 printf ("%d", a);

}

parameters evaluate

right to left

a++ → 10 → 11

10

++a → 1 + 11 = 12

+

11

=

12

Ans ⇒ 12, 10, 12 . 12

58. void main ()

{
 S = 0; (b)

 static int S = 1;

 ++S;

 printf("%d", S);

 if(S <= 3)

 main();

 printf("%d", S);

}

What is the output of the above program?

(a) 2, 2, 3, 4, 4, 4

(b) 2, 2, 3, 3, 4, 4

(c) 2, 3, 4, 4, 4, 4

(d) Stack overflow ERROR

C) 58 \Rightarrow valid main()

{ static int s = 1;
 ++s; } $\xrightarrow{s=2}$

printf("%d", s); $\rightarrow 2, 3, 4,$
if (s <= 3) $\rightarrow 2 \& 3$ (True)

main () { }

printf("%d", s); $\rightarrow 4, 9, 9$

Stack Value
printed

Ans \rightarrow C) 2, 3, 4, 9, 9, 9

Teacher's Signature

Common : fan $59 \times 60 \Rightarrow$ Stadt

Program main (input, output)
var i, j, k : int;

procedure Q (var i : int, m : int)
begin
 i = i + k;
 m = j + l;
 writeln (i, j, k, m);
end;

Procedure P (var i : int, j : int)

var k ;

begin

$k = 9j$

$i = i + k$

$j = j + k$

$Q(i, j)$

end

begin

$i = 1$

$j = 2$

$k = 3$

$P(i, k)$

end

59. What is the output printed by writeln statement if the parameter passing mechanism is call by value?

- (a) 8, 2, 3, 3
- (b) 1, 2, 3, 7
- (c) 5, 2, 3, 7
- (d) 5, 7, 4, 7

a) 59) Call by value -

$\text{min}() \{$

$\} Q(i, m)$

{

$i = i + k; \quad // i = 5 + 3 = 8$

$m = j + 1; \quad // m = 2 + 1 = 3$

$\text{print}(i, j, k, m);$

}

$P(i, j) \leftarrow$

{

$k = 4;$

$i = i + 4; \rightarrow i = 1 + 4 = 5$

$j = j + 4 \rightarrow j = 3 + 4 = 7$

$Q(i, j);$

{

$i = 1$

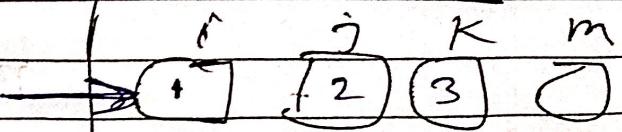
$j = 2$

$k = 3$

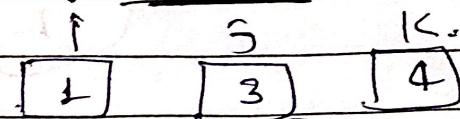
$P(1, 3);$

{

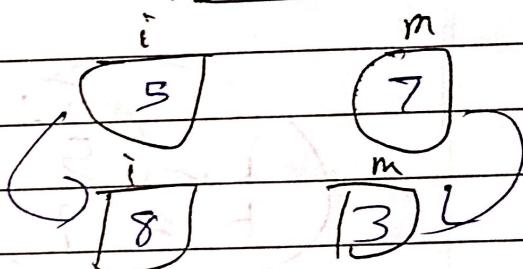
main()



PC



PC



$\text{print}(i, j, k, m);$

8, 2, 3, 3

Ans \rightarrow a) 8, 2, 3, 3

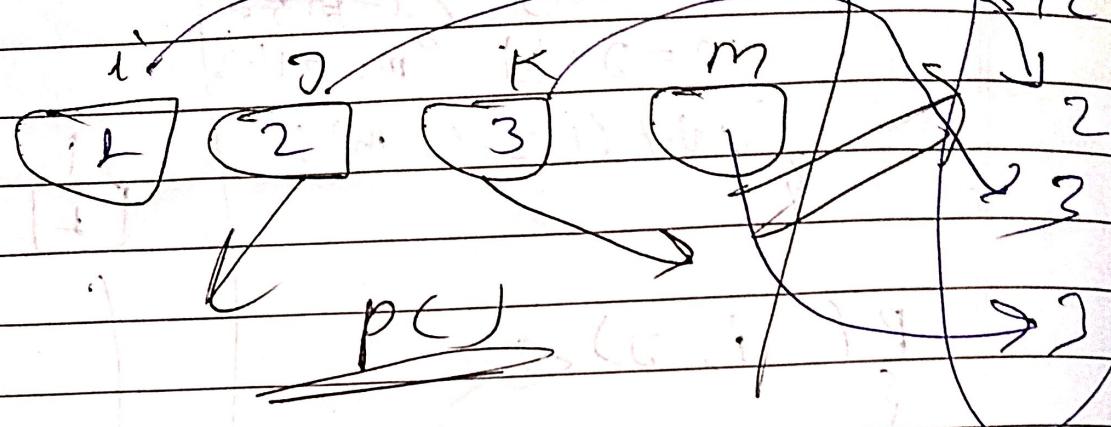
Teacher's Signature

60. What is the output printed by writeln statement if the parameter passing mechanism is call by reference?

- (a) 1, 2, 3, 3
- (b) 5, 7, 3, 3
- (c) 12, 2, 3, 3
- (d) 12, 2, 3, 7

c(60) call by reference

main()



i, j are alias to above i, k

$$\begin{aligned} i &= 5 \\ j &= 7 \end{aligned}$$

$$\begin{aligned} i &= i+k = 5+7 = 12 \\ j &= j+k = 7+7 = 14 \end{aligned}$$

i, j are alias do above i, k

$$i = i+k = 5+7 = 12$$

$$j = j+i = 7+5 = 12$$

print(i, j)

Ans →

5, 12
12, 2, 3, 3

12, 2, 3, 3

j, k

Teacher's Signature.....