



CLASS TEST – 1					SEMESTER: Spring 2016						
Roll Number					Name						
PDS Section					Subject Name		Programming & Data Structures				
Department/Centre of the Student											
To be filled in by the Examiner											
Question Number	1	2	3	4	5	6	7	8	9	10	Total
Marks obtained											

Date: 4th February, 2016

Marks: 50

Time: 1 hour

Answer all the question. Write the answers in the space provided.

1. What will be printed by the following C program segment?

[6 marks]

```
int a=25, b=7, c=15, d;  
float m=12.5, x, y;  
d = a + 3 / b * c;  
x = (float) (a / b);  
y = m * (b / c);  
c = a + b / c;  
printf ("%d %d %f %f", c, d, x, y);
```

Ans (Q1):

25 25 3.0000 0.0000

2. Fill in the blanks so that max gets the value of the maximum of three integers, a, b, and c:

[6 marks]

```
if (a>b) if ( a>c ) max=a; else max=c;  
else if (b>c) max= b; else max= c;
```

3. Write down C expressions for computing the following, using functions from the math.h library where required.

[6 marks]

a) $(x^2 + y^3) + e^z$

Ans (Q3a):

$x*x + y*y*y + \exp(z)$ OR $\text{pow}(x,2) + \text{pow}(y,3) + \exp(z)$

b) $\sin\left[\frac{-b + \sqrt{b^2 - 4ac}}{2a}\right]$

Ans (Q3b):

$\sin((-b + \text{sqrt}(b*b-4*a*c)) / (2*a))$

4. What will be the outputs of the following C program segments?

[4x3=12 marks]

a) `int A=5, B=7;
(++A == --B) ? printf("DAY") : printf("NIGHT");
printf ("\nResult = %d", A++ * --B);`

Ans (Q4a): **DAY**
Result = 30

b) `int sum=0, i, j;
for (i=0; i<=10; i+=2)
 for (j=i; j<2*i; j++)
 sum = sum + j + (i > 15);
printf ("%d", sum);`

Ans (Q4b):

315

c) `int i, j, k;
for (i=1; i<10; i++) {
 printf ("\n %d: ", i);
 for (j=1; j<10; j++) {
 if (i%3 == 0) break;
 if (i > j) continue;
 k=i*10+j;
 printf (" %d", k);
 }
}`

Ans (Q4c):

1 11 12 13 14 15 16 17 18 19
2 22 23 24 25 26 27 28 29
3
4 44 45 46 47 48 49
5 55 56 57 58 59
6
7 77 78 79
8 88 89
9

d) `int option = 2;
switch (option/2)
{
 case 1: printf ("ONE\n");
 case 2: printf ("TWO\n");
 case 3: printf ("THREE\n");
 break;
 default: printf ("OTHER\n");
}`

Ans (Q4d):

ONE
TWO
THREE

5. Fill in the blanks such that the output of the program is 10 followed by 20.

[6 marks]

`int a=10, b= 5;`

```
void f(void) {  
    int a=5;  
    b = a + b;  
    printf("%d", b);  
}
```

```
main()  
{  
    int b= 10;  
    f(); a = a + b;  
    printf ("%d", a);  
}
```

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6. The function `f()` is called multiple times from some other function. What will be the value returned by the function `f()` after the 5th call to the function? (*assume that `g()` is not called by any other function*)

[6 marks]

```
int f(void)
{
    int a=0;
    int g(void);
    a = a + g();
    return a;
}

int g(void)
{
    static int b=0;
    b = b + 5;
    return b;
}
```

Ans (Q6):

25

7. What will be printed by the following program segment?

[6 marks]

```
int i = 10;

while ( i > 0 )
{
    printf("Hello %d\n", i );
    i = i - 1;
    if (i == 6) break;
}
```

Ans (Q7):

Hello 10
Hello 9
Hello 8
Hello 7

8. Which of the following are not valid identifiers in C?

[2 marks]

- a) `a_12_bcd`
- b) `real-root`
- c) `123_counter`
- d) `Speed_123_distance`
- e) `break`
- f) `name$surname`

Ans (Q8):

(b)
(c)
(e)
(f)

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ROUGH WORK

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