

1. Consider the following C program. What will be the output?

[2 Marks]

```
#include <stdio.h>
int main() {
    int y, x = 1;
    y = (x=x+5, x*5);
    printf ("%d\n",y);
    return 0;
}
```

Answer: 30

2. Consider the following C program. For every input n shown in the table, write the output x (given by the printf statement).

[4 Marks]

```
#include <stdio.h>
int main() {
    int x = 0, n;
    scanf("%d", &n);
    if (n > 8) {
        if (n < 9) x = 1;
    }
    else {
        if (n > 4)
            if (n < 6) x = 2;
        else x = 3;
        else
            if (n > 2) x = 4;
        else x = 5;
    }
    printf ("%d\n", x);
    return 0;
}
```

Input (n)	Output (x)
1	5
3	4
7	3
9	0

3. Consider the following C program. What will be the output?

[2 Marks]

```
#include <stdio.h>
int main() {
    int a = 5, b = 2;
    float x = 5.0, y = 2.0, result;
    result = (a / b) + (x / b) + (a / y) + (x / y);
    printf ("%0.2f\n", result);
    return 0;
}
```

Answer: 9.50

4. Consider the following C program. For every input character shown in the table, write the output given by the printf statement(s). **[4 Marks]**

```
#include <stdio.h>

int main() {
    char d;
    scanf ("%c", &d);

    switch(d) {
        case 'a':
        case 'A':
            printf ("Apple ");
            break;
        default:
            printf ("Ummm ");
            break;
        case 'y':
        case 'Y':
            printf ("Yak ");
        case 'z':
        case 'Z':
            printf ("Zebra ");
    }

    return 0;
}
```

Input	Output
a	Apple
y	Yak Zebra
n	Ummm
Y	Yak Zebra

5. Consider the following C program. What will be the output?

[3 Marks]

```
#include <stdio.h>

int main() {
    int a = 0, b = 1;

    (a = 0)&&(b == 1)?printf("K-1\n"):printf("K-2\n");

    !(b == 0)?printf("K-%d",++a):printf("K-%d",a++);

    return 0;
}
```

Answer:
K-2
K-1

6. Consider the following C program that asks the user for an integer n and then generates the reverse of that number. After reversing, the program checks whether the number is a palindrome (i.e., the same forward and backward).

For example, if $n = 12321$, the reversed number is 12321, and thus it is a palindrome. If $n = 14121$, then the reversed number is 12141, and thus it is NOT a palindrome.

Fill up the blanks so that the program gives the correct output.

[5 Marks]

```
#include <stdio.h>

int main() {
    int n, original, reversed, remainder;

    printf ("Enter a number: ");
    scanf ("%d", &n);

    original = n;
    reversed = 0;

    while (n != 0) {
        remainder = n%10;
        reversed = reversed * 10 + remainder;
        n = n/10;
    }

    printf ("Reversed number = %d\n", reversed);

    if (original==reversed)
        printf ("It is a palindrome.\n");
    else
        printf ("It is not a palindrome.\n");

    return 0;
}
```