

Midterm Exam

Duration: 120 mins

MTH 307, SEMESTER 2, 2014-15

Maximum Points: 50

1. Write the output for the following programs. Explain the reasoning behind your answer. [5+5+5]

```
(a) #include<stdio.h>
void main()
{
    switch(5/2*6+3.0)
    {
        default:printf("Ronaldo");
        case 3:printf("David Beckham");
            break;
        case 15:printf("Ronaldinho");
            break;
        case 0:printf("Lionel Messi");
            break;
    }
}
```

```
(b) include<stdio.h>
int main()
{
    int i = -3, j = 2, k = 0, m;
    m = ++i || ++j && ++k;
    printf("%d, %d, %d, %d \n", i, j, k, m);
    return 0;
}
```

```
(c) #include<stdio.h>
int main()
    int i,j;
    i = j = 2,3;
    while(--i && j++)
        printf("%d %d",i,j);
    return 0;
}
```

2. Write C programs for the following.

(a) Accepting two integers from the user and swapping their values without using a third integer variable. [5]

(b) Computing the partial sum up to k terms of the series [10]

$$\sum_{n=1}^{\infty} \frac{1 \cdot 3 \cdot \dots \cdot (2n-1)}{5^n n!},$$

where k is accepted from the user. [10]

(c) Accepting a polynomial $p(x)$ of degree 3 with integer coefficients in the form ax^3+bx^2+cx+d from the user and does the following tasks. [10+10]

- Computes and prints the derivative $p'(x)$ in the form ax^2+bx+c .
- Determines whether $(x-t)$ is a factor of $p(x)$ and if it is, computes and displays $p(x)/(x-t)$ in the form ax^2+bx+c .