**HW#1**

1. 
2. 100110
3. 10011
4. **11001**
5. 110010
6. The coefficient of the  term in the Maclaurin polynomial for  is
7. 0
8. 0.0083333
9. 0.016667
10. **0.26667**
11. Representing  in a fixed point register with 2 bits for the integer part and 3 bits for the fractional part gives a round-off error of most nearly
12. -0.085709
13. **0.0392**
14. 0.1642
15. 0.2892
16. An engineer working for the Department of Defense is writing a program that transfers non-negative real numbers to integer format. To avoid overflow problems, the maximum non-negative integer that can be represented in a 5-bit integer word is
17. 16
18. **31**
19. 63
20. 64
21. Using the remainder of Maclaurin polynomial of order for  defined as



the least order of the Maclaurin polynomial required to get an absolute true error of at most  in the calculation of  is (do not use the exact value of or to find the answer, but the knowledge that  and ).

1. 3
2. **5**
3. 7
4. 9
5. The truncation error in calculating  for  by



with  is

1. **-0.2**
2. 0.2
3. 4.0
4. 4.2

7. The truncation error in finding  using LRAM (left end point Riemann approximation) with equally portioned points  is

1. 648
2. 756
3. **972**
4. 1620

Implement following algorithm in Matlab

Input (N)10

i = 0

Divide N by 2 to get quotient Q & remainder R

ai = R

Is Q =0?

n = i

(N)10 = (an. . .a0)2

Integer N to be converted to binary format

i=i+1,N=Q

No

Yes

Input (F)10

Multiply F by 2 to get number before decimal, S and after decimal, T

ai = S

Is T =0?

n = i

(F)10 = (a-1. . .a-n)2

Fraction F to be converted to binary format

No

Yes





Hint: number=1.23;

integ=floor(number);

fract=number-integ;