Multiple-Choice Test

Chapter 01.03
Sources of Error

1. Truncation error is caused by approximating
   (A) irrational numbers
   (B) fractions
   (C) rational numbers
   (D) exact mathematical procedures

2. A computer that represents only 4 significant digits with chopping would calculate 66.666*33.333 as
   (A) 2220
   (B) 2221
   (C) 2221.17778
   (D) 2222

3. A computer that represents only 4 significant digits with rounding would calculate 66.666*33.333 as
   (A) 2220
   (B) 2221
   (C) 2221.17778
   (D) 2222

4. The truncation error in calculating $f'(2)$ for $f(x)=x^2$ by
$$f'(x)\approx\frac{f(x+h)-f(x)}{h}$$
with $h=0.2$ is
   (A) -0.2
   (B) 0.2
   (C) 4.0
   (D) 4.2

5. The truncation error in finding $\int_{-3}^{9} x^3 dx$ using LRAM (left end point Riemann approximation) with equally portioned points $-3<0<3<6<9$ is
   (A) 648
   (B) 756
   (C) 972
   (D) 1620

6. The number 1/10 is registered in a fixed 6 bit-register with all bits used for the fractional part. The difference gets accumulated every $1/10^{th}$ of a second for one day. The magnitude of the accumulated difference is

   (A) 0.082
   (B) 135
   (C) 270
   (D) 5400

   Complete solution