Multiple-Choice Test

Chapter 01.02
Measuring Errors

1. True error is defined as
   (A) Present Approximation – Previous Approximation
   (B) True Value – Approximate Value
   (C) abs (True Value – Approximate Value)
   (D) abs (Present Approximation – Previous Approximation)

2. The expression for true error in calculating the derivative of $\sin(2x)$ at $x = \pi/4$ by using the approximate expression
$$f'(x) \approx \frac{f(x+h)-f(x)}{h}$$
is
   (A) $\dfrac{h-\cos(2h)-1}{h}$
   (B) $\dfrac{h-\cos(h)-1}{h}$
   (C) $\dfrac{1-\cos(2h)}{h}$
   (D) $\dfrac{\sin(2h)}{h}$

3. The relative approximate error at the end of an iteration to find the root of an equation is 0.004%. The least number of significant digits we can trust in the solution is
   (A) 2
   (B) 3
   (C) 4
   (D) 5

4. The number 0.01850×10^3 has _____ significant digits
   (A) 3
   (B) 4
   (C) 5
   (D) 6

5. The following gas stations were cited for irregular dispensation by the Department of Agriculture. Which one cheated you the most?

Station	Actual gasoline dispensed	Gasoline reading at pump
Ser	9.90	10.00
Cit	19.90	20.00
Hus	29.80	30.00
She	29.95	30.00

(A) Ser
(B) Cit
(C) Hus
(D) She

6. The number of significant digits in the number 219900 is
(A) 4
(B) 5
(C) 6
(D) 4 or 5 or 6

For a complete solution, refer to the links at the end of the book.