Multiple-Choice Test

Chapter 03.01
Background Nonlinear Equations

1. The value of \( x \) that satisfies \( f(x) = 0 \) is called the
   (A) root of an equation \( f(x) = 0 \)
   (B) root of a function \( f(x) \)
   (C) zero of an equation \( f(x) = 0 \)
   (D) none of the above

2. A quadratic equation has ________ root(s).
   (A) one
   (B) two
   (C) three
   (D) four

3. For a certain cubic equation, at least one of the roots is known to be a complex root. How many total complex roots does the cubic equation have?
   (A) one
   (B) two
   (C) three
   (D) cannot be determined

4. An equation such as \( \tan x = x \) has ________ root(s).
   (A) zero
   (B) one
   (C) two
   (D) infinite

5. A polynomial of order \( n \) has ________ zeros.
   (A) \( n - 1 \)
   (B) \( n \)
   (C) \( n + 1 \)
   (D) \( n + 2 \)

6. The velocity of a body is given by \( v(t) = 5e^{-t} + 4 \), where \( t \) is in seconds and \( v \) is in m/s. The velocity of the body is 6 m/s at \( t = _____ \) seconds.
   (A) 0.1823
   (B) 0.3979
   (C) 0.9163
   (D) 1.609
For a complete solution, refer to the links at the end of the book.