1. To be able to use the deflection method in a Wheatstone bridge you need at least:
   a. Two ammeters and two formulas
   b. One voltmeter and one formula
   c. Two voltmeters and two formulas
   d. One resistance meter
   e. N.A.

2. A K-type thermocouple is generating 5mV when the reference junction is at 40°C. The temperature of the measuring junction in °C is closer to:
   a. -20
   b. 0
   c. 20
   d. 10
   e. -10

3. A J-type thermocouple is generating 15mV when the measuring junction is at 30°C. The temperature of the reference junction in °C is closer to:
   a. -20
   b. 0

4. A bimetallic strip is built by joining a copper plate and a nickel plate at 25°C. It is then installed as a cantilever beam with the nickel on top. The plates have the same length and width. When the temperature is 50°C:
   a. The center of curvature of the beam strip is above the strip
   b. The strip deflects upward
   c. The direction of the deflection depends on the thicknesses of the plates.
   d. More than one statement is true
   e. All statements, except this one, are false.

5. A piece of wire with a length of 1 meter and carrying a current of 1 A is exposed to a magnetic field. Which statement is true?
   a. The magnitude of the force appearing on the wire depends on the material of the wire
   b. The maximum possible force is 1 N, obtained when the wire is at right angles with the magnetic vector.
   c. The force depends on whether the wire is moving or not.
   d. More than one statement is true
   e. All statements, except this one, are false.

6. Which statement is true?
   a. A potentiometer can be used to convert mechanical energy to electric energy.
b. A voltage divider produces different voltages according to the load resistance.

c. The principle of operation of an LVDT is a change of electrical resistance with position.

d. More than one statement is true

e. All statements, except this one, are false.

7. A tachometer features a torque constant of 0.01 N-m/A. The voltage generated by the tachometer at 1000 rpm is closest to:

a. 10 V
b. 0 V
c. -10 V
d. 3 V
e. The voltage is not close to any of the above numbers.

8. A thermistor has a resistance of 10kΩ at 25° and a resistance of 3.3kΩ at 50°. The value of the coefficient β is closest to:

a. 2000
b. 0
c. 3000
d. 4000
e. The coefficient is negative.

9. A thermometer is reading 42 F. The bulb is suddenly placed in boiling water. After 12 seconds, the reading is 202 F. The time constant of the thermometer is closest to:

a. 2
b. 3