

**Part I. Answer these questions by marking the best answer among the choices given:**

1. The bioelectric signal from needle electrode is ... signal from surface electrode from the same location.
  - a. Larger than
  - b. Smaller than
  - c. Same as
  - d. Opposite in polarity than
2. The measured output of a piezoelectric force transducer is in the form of ...
  - a. Electric charge
  - b. Electric current
  - c. Electric voltage
  - d. Capacitance
3. An example of biothermal signal is ...
  - a. Electroencephalography
  - b. Body temperature
  - c. Color of skin
  - d. Cardiac output

**Part II. Mark the following statement as either True (T) or False (F):**

4. Random errors can be avoided by designing different method of measurement.
5. Resistive strain gauge measurements change linearly with strain.
6. Signal processing is used to correct for sensor nonlinearity in medical devices.

**Part III. Answer the following questions:**

7. Give three different examples of practical biosensors and identify the following:
  - a. Their datasheets including their basic components and interfacing method.
  - b. Their primary and secondary signals.

(Hint: you can use [www.digikey.com](http://www.digikey.com) to search for sensors)

- *Assigned:* February 22, 2015
- *Deadline:* Sunday March 1, 2015
- *Submission:* Electronic form (PDF) to instructor's email address: [ykadah@kau.edu.sa](mailto:ykadah@kau.edu.sa)