Assessment for Therapeutic BioMEMS Overview
Instructor Guide

Notes to Instructor

This assessment helps to evaluate the participants' knowledge of current and future applications of Therapeutic bioMEMS Devices. This assessment could be compared to the Knowledge Probe to provide information on what was learned as a result of completing the supporting PK and activity.

This assessment is part of *Therapeutic BioMEMS Overview Learning Module*:
- Knowledge Probe (KP) or pretest
- Therapeutic BioMEMS Overview PK
- Marketing a Therapeutic BioMEMS Activity
- **Assessment for Therapeutic BioMEMS**

Introduction

The purpose of this assessment is to evaluate your understanding of the advantages of therapeutic bioMEMS and how they work to provide therapeutic care to patients.

There are ten (10) multiple choice questions.

1. Which of the following BEST describes "therapeutic bioMEMS"? MEMS or micro-sized devices used to _____ diseases and /or conditions?
    a. identify and diagnose
    b. monitor and possibly cure
    c. prevent and manage
    d. diagnose and manage

2. Which of the following is an example of a fully "in vivo" therapeutic bioMEMS?
    a. Cochlear Implant
    b. MIS
    c. Continuous Glucose Monitoring system
    d. Pacemaker

3. A bilayer phospholipid vesicle used to deliver drugs in a timely and efficient manner is called a _____.
    a. liposome
    b. microbead
    c. cannula
    d. biosensor

4. Implantable continuous glucose monitors use _____ to measure glucose levels in the _____ between body tissues.
    a. biosensors, connective tissue
    b. biosensors, interstitial fluid
    c. infrared light, connective tissue
    d. ultraviolet light, interstitial fluid

5. Which of the following is NOT currently used or being researched as a drug delivery device.
    a. Liposomes
    b. Micropumps
    c. Hydrogels
    d. Synthetic tissue

6. One of the main problems with minimally invasive surgery devices being used today is the _____.
    a. lack of haptic feedback
    b. inability to cauterize tissues
    c. poor quality of visual feedback
    d. limited degrees of freedom

7. Which of the following BEST describes the "artificial retina"?
   a. An optical sensor placed beneath the retina and used to stimulate the optic nerve using electrical pulses.
   b. A receiver/transmitter placed in the eye and used to convert light energy to electrical energy that stimulates the optic nerve.
   c. An electrode studded array placed on or beneath the surface of the retina that converts light energy to electrical energy that stimulates the retinal neurons.
   d. Photovoltaic cells placed beneath the retina that use the light entering the eye to stimulate the photoreceptors beneath the retina.

8. Which of the following artificial retina arrays provides the highest resolution?
   a. 4x4
   b. 16x16
   c. 32 x 32

9. Drug-eluting stents are used as a therapeutic device for which of the following conditions?
   a. Restenosis
   b. Retinitis pigmentosa
   c. Diabetes
   d. Hepatitis

10. Which of the following microtechnologies is working to address the problems associated with the need for new or damaged organs?
    a. Microfluidics
    b. Cell culture
    c. Drug delivery
    d. Tissue engineering