



Arab Academy for Science & Technology & Maritime Transport  
College of Engineering & technology  
Electronics & Communication Engineering Department  
Course: MEMS Course Code: EC 530

Instructor: Prof. Hazem H. Ali

GTA: Eng. Fadi S. AYAD

MCQ set #1: Introduction to MEMS and applications

Choose the most proper answer:

Model Answer

1. A complete micro system should:-

- a) Detect process and evaluate external signals.
- b) Make decisions based on obtained information.
- c) Convert decisions into corresponding actuator commands.
- d) All of the above.

3. Micromechanics is:-

- a) Development and production of miniaturized systems.
- b) In general the three-dimensional structuring of solids.
- c) Optical signal transmission in light- conducting media.
- d) Developing and producing fluid element.

5. Most micro-products available today are:-

- a) Microactuators.
- b) Microsensors.
- c) Microoptics.
- d) Pumps.

7. One of the following properties is an advantage of MEMS technology :

- a) Miniaturization with loss of functionality
- b) High power
- c) Fast actuation techniques
- d) None of the above

9. MEMS was firstly used in:

- a) 1999
- b) 1986
- c) 1990
- d) 1993

11. From the challenges that face MEMS technology:

- a) High investment costs
- b) Small-volume production has not been profitable
- c) Early stage of development
- d) All the above

13. .... Is/are MEMS material deposition method:

- a) Surface micromachining
- b) LIGA
- c) LCVD and LECD
- d) All the above

15. the advantages of micro needle used in drug delivery :

- a) Painless
- b) Doesn't reach to nerve
- c) Eliminates vibration of the hand
- d) a&b

2. The MST has become important source for:-

- a) Sensors.
- b) Actuators.
- c) Entire control modules.
- d) All of the above.

4. Micro electronic integrated circuit can be thought as the .....of a system

- a) Brain
- b) Eyes
- c) Arms
- d) All of the above

6. MEMS Technology allows complex electro mechanical systems to be manufactured using.....

- a) Batch fabrication techniques
- b) Mechanical techniques
- c) Medical techniques
- d) Electrical techniques

8. MEMS consists of:

- a) Mechanical microstructure
- b) Microsensors
- c) Microactuator
- d) All the above

10. MEMS devices are within the range:

- a) 1pm-1nm
- b) 1nm-1µm
- c) 1µm-1mm
- d) 1mm-1cm

12. The largest MEMS market consumers are:

- a) Automotive
- b) IT and entertainment
- c) Biomedical
- d) All the above

14. MEMS advantages is/are..... :

- a) Cost savings
- b) Reduction of size
- c) New features and functions
- d) All the above

16. ....eliminates vibration of the hand:

- a) Microsubmarine
- b) Minimally invasive surgery
- c) Active tremor cancellation
- d) Implantable electrodes

17. In the implantable electrodes, the thickness of polyimide foils electrodes is.....

- a) 0.1 m
- b) 10 nm
- c) 10 mm
- d) 10 um

19. Cardiac pacemakers are used.....

- (a) For navigation inside the body.
- (b) For increasing the blood flow through the catheter.
- (c) To minimize the surgical impact on the body.
- (d) To manage a heart beat that is too slow or irregular.

21. one of the following body functions is not monitored by the implantable sensors:

- a) Glucose for diabetics
- b) Temperature
- c) Heartbeat
- d) Pressure

23. ....is a device used for intestinal imaging, with wireless power and video transfer:

- a) Cardiac pacemaker.
- b) Norika3.
- c) Implantable sensor.
- d) Personal healthcare system.

25. One of the following is an Environmental Application :

- a) High Quality Filters
- b) Soil Quality
- c) Pollution Sensor
- d) a & c

27. .... can be measured by MEMS:

- a) Relative humidity
- b) Barometric pressure
- c) Aviation
- d) All of the above.

18. in hearing aids, to protect ear from loud sounds we use .....

- a) Attenuator
- b) Insulator
- c) Automatic gain control device
- d) Non of the above

20. One of the following is not an implantable system:

- a) Cardiac peacemakers
- b) Hearing aids
- c) Artificial limbs
- d) Drug delivery

22. Hearing Aids, pacemakers and artificial Limbs are.....:

- a) Measurements devices
- b) Implantable devices
- c) Power devices
- d) None of the above.

24. The advantages of the Lab-On-a-Chip are:

- a) Inexpensive
- b) Fluid volume is very small (samples)
- c) Carry out DNA analysis
- d) All of the above

26. Which of the following is a new energy resource:

- a) Solar photo voltaic
- b) Biomass
- c) Kinetic
- d) All of the above

28. T sensors is used in the following applications:

- a) Clinical chemistry analyzer
- b) Drug and hormone analyzer
- c) Pollution Sensor
- d) a & b

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