Unit 10 - Fabrication of Microchip for Rapid Drug Screening

Week 8 Assignment

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-09-25, 23:59 IST.

1) *in vivo* situation of our body can be mimicked most faithfully by: *1 point*

- IDE structure
- Microfluidic chips
- Micro-tubules with peristaltic pump
- All of these individually can mimic

No, the answer is incorrect.
Score: 0
Accepted Answers:
Microfluidic chips

2) A micro-heater is fabricated on silicon wafer followed by deposition of insulation layer. A metal layer is deposited and is patterned to get IDE structure. The fabrication process of this device is a _____ mask process. *1 point*

- One
- Two
- Three
- It is user dependent and cannot be predicted

No, the answer is incorrect.
Score: 0
Accepted Answers:
Three

3) In fabrication of microfluidic devices, PDMS can be used. PDMS belongs to the group of materials, commonly referred to as silicones. Generally, PDMS is patterned by ____. *1 point*

- Optical lithography
- Soft lithography
- E-beam lithography
- All of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
Soft lithography

4) The following statement is related to the experimental results that were discussed for the antibiotic susceptibility testing microfluidic chip: *1 point*

"Upon addition of antibiotic drug to the microfluidic chip containing the captured bacteria the normalized impedance decreased"

Is the above statement true or false?

- True
- False

No, the answer is incorrect.
Score: 0
Accepted Answers:
False

5) Consider following statements related to the microfluidic chip for rapid drug screening that was discussed *1 point*

I. The substrate used was silicon wafer
II. The electrical sensor (Interdigitated electrodes) were patterned directly on top of the NiCr microheater.

Which of the above statements are true?

- I only
- II only
- Both I and II
- Neither I nor II

No, the answer is incorrect.
Score: 0
Accepted Answers:
Neither I nor II

6) With regard to the microfluidic chip for rapid drug screening that was discussed evaluate whether the following statement is true or false? *1 point*

"The normalised impedance of the drug susceptible cancer cells decreased upon addition of the drug"

- True
- False

No, the answer is incorrect.
Score: 0
Accepted Answers:
True

7) In the microfluidic chip for rapid antibiotic susceptibility testing that you have seen in the lectures, the antibody was used for what purpose? *1 point*

- To capture the antibiotics when they are introduced
- To capture the bacteria from the sample
- To ensure better bacterial growth during incubation after adding antibiotic drug
- To enhance the killing of the bacteria by the drug

No, the answer is incorrect.
Score: 0
Accepted Answers:
To capture the bacteria from the sample

8) For fabrication of SU-8 pillars, which one is the standard process flow: *1 point*

- Photoresist coating, Soft bake (at 363 K), UV exposure, Development, Hard bake (at 393 K)
- Photoresist coating, Soft bake (at 338 K), UV exposure, Development, Hard bake (at 368 K)
- Photoresist coating, Soft bake (at 363 K), UV exposure, Hard bake (at 393 K), Development
- Photoresist coating, Soft bake (at 338 K), UV exposure, Hard bake (at 368 K), Development

No, the answer is incorrect.
Score: 0
Accepted Answers:
Photoresist coating, Soft bake (at 338 K), UV exposure, Hard bake (at 368 K), Development

9) Why heater is required in drug screening device? *1 point*

- At elevated temperature sensitivity increases
- Matrigel is stable only at elevated temperature (~ 320K)
- To maintain normal human body temperature on the chip
- All of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
To maintain normal human body temperature on the chip

10) Static platform for determining efficacy of drug gives result different than the dynamic systems. The reason behind it is: *1 point*

- Human body is a dynamic system. So, it cannot be replicated properly using static system
- Drugs cannot be properly placed on the tissue in static system
- Human body acts as static system. So, statement is false
- Human body may be a dynamic system, but static replication gives same result as dynamic system gives

No, the answer is incorrect.
Score: 0
Accepted Answers:
Human body is a dynamic system. So, it cannot be replicated properly using static system