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Unit 13 - Week 12

Week 12 - Assignment

The due date for submitting this assignment has passed. **Due on 2017-10-18, 23:59 IST.**

Submitted assignment

1) Measuring the diameter of microchannel assuming Poiseuille law is used in the following method *1 point*

- Flow of liquid through capillary
- Mercury filled in Capillary
- Scanning Electron Microscopy
- Tube cutting method

No, the answer is incorrect.
Score: 0

Accepted Answers:
Flow of liquid through capillary

2) Following technique needs the microchannel to be optically accessible to measure diameter *1 point*

- Flow of liquid through capillary
- Mercury filled in Capillary
- Scanning Electron Microscopy
- Tube cutting method

No, the answer is incorrect.
Score: 0

Accepted Answers:
Scanning Electron Microscopy

3) Following pressure measuring technique does not require optical accessibility *1 point*

- Tube cutting method
- Pressure-Sensitive paints
- Optical lever method
- Mercury filled in Capillary

No, the answer is incorrect.
Score: 0

Accepted Answers:
Tube cutting method

4) In optical lever method, the pressure is measured by measuring *1 point*

- Light emitted from luminescent molecules on the membrane
- Change in deflection angle of a fixed incident laser targeting the membrane surface
- Changing the distance between the membrane and the photodiode sensor
- Calculating the pressure drop in two different sized tubes

No, the answer is incorrect.
Score: 0

Accepted Answers:
Change in deflection angle of a fixed incident laser targeting the membrane surface

5) Micro resistance temperature detector (μRTD) operates on the principle of **1 point**

- Seebeck effect
- Peltier effect
- Temperature-dependent electrical resistivity
- Junction voltage

No, the answer is incorrect.
Score: 0

Accepted Answers:
Temperature-dependent electrical resistivity

6) The major advantage of using thermocouples than RTD **1 point**

- Linear response characteristic
- Stabile than RTD
- Repeatable than RTD
- Large range of temperature measurement

No, the answer is incorrect.
Score: 0

Accepted Answers:
Large range of temperature measurement

7) Which of the following technique cannot be used for measuring velocity in small diameter microchannels (<1000μm) **1 point**

- Laser-Doppler Anemometry (LDA)
- The Micro-Particle Image Velocimetry (μPIV)
- The Molecular-Tagging Velocimetry (MTV).
- Semiconducting sensors

No, the answer is incorrect.
Score: 0

Accepted Answers:
Laser-Doppler Anemometry (LDA)

8) In Molecular Tagging velocimetry **1 point**

- Tracer particles are illuminated with Laser light
- Molecules are tagged by illuminated with laser light so that they differ from the rest of the
- Two lasers are used to create interference pattern
- Ink droplets are released and streak lines are observed

No, the answer is incorrect.
Score: 0

Accepted Answers:
Molecules are tagged by illuminated with laser light so that they differ from the rest of the

9) Following methods are transient methods for measuring thermal conductivity **1 point**

- 3ω method
- Guarded hot plate method
- Radial heat flow method
- Transient hot wire method

No, the answer is incorrect.
Score: 0

Accepted Answers:
3ω method

Radial heat flow method

10) Calculate the voltage measurement including uncertainty if the current measured is 2±0.01A and resistance is 5±0.1Ω. ***1 point***

- 7±0.106V
- 7±0.206V
- 10±0.106V
- 10±0.206V

No, the answer is incorrect.
Score: 0

Accepted Answers:
10±0.206V

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