Unit 4 -
Photolithography (Heart of Microengineering Process),
Understanding Atrial Fibrillation, Catheter Ablation Procedure and Experiment on ECG Signal Conditioning

Week 3 Assignment

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

1) Consider a half wave rectifier shown in figure below. What is the minimum input voltage (Vin) required for the diode to conduct?
Note: The forward voltage of diode is 0.7 V and the open loop gain of op-amp is 10^4

- 0.7 V
- 1 V
- 70µV
- 0 V

No, the answer is incorrect.
Score: 0
Accepted Answers:
70µV

2) For the circuit shown in question 1, consider Vin is connected to 5 V DC. Compute the relation between Voa and Vo

- Voa = Vo
- Voa < Vo
- Voa > Vo
- None of the mentioned

No, the answer is incorrect.
Score: 0
4) ______ can be used to measure force.
   - Strain gauges
   - Bellows
   - Bourdon gauges
   - All of these

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

5) Strain gauge is a ______ device that converts _____ into _____.
   - Active; electrical signal; change of resistance
   - Passive; electrical signal; change of resistance
   - Active; mechanical displacement; change of resistance
   - Passive; mechanical displacement; change of resistance

No, the answer is incorrect.
Score: 0
Accepted Answers:
Passive; mechanical displacement; change of resistance

6) PDMS is bonded to glass wafer by
   - Plasma Bonding
   - Anodic Bonding
   - Using double sided adhesive
   - Thermocompression

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

7) Consider the circuit shown in figure below. Compute the output waveform for an input of 5kHz
   - None of the mentioned

No, the answer is incorrect.
Score: 0
Accepted Answers:
8) For mixed ambient growth kinetics of wet oxidation process, which of the following is correct?

- Substrate doping can affect growth kinetics at lower temperature
- Rate depends on partial pressure of particular oxidant
- It depends on substrate orientation
- All of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
All of these

9) Mask aligner is used to:

- I. Alignment of wafer to mask
- II. Coat photoresist on wafer
- III. Expose the coated wafer
- IV. Developing the pattern, printed on wafer

- I, II
- II, III
- I, III
- III, IV

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

10) Determine the roll-off for the filter circuit shown below

- 40 dB/decade
- 60 dB/decade
- 20 dB/decade
- 80 dB/decade

No, the answer is incorrect.
Score: 0
Accepted Answers:
20 dB/decade

11) Consider the circuit shown in the figure below. If input V1 = 3 Vp-p sine wave, compute the output voltage of the op-amp U2

- 3 Vp-p Sine wave
- 1.5 Vp-p sine wave
- 3 V DC
- 1.5 V DC

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.5 V DC

12) For the circuit shown in the question 10, select the correct operation of the circuit

No points
13) In ion-assisted etching process, CHF₃ is used in:

- Dry etching of silicon dioxide
- Dry etching of silicon nitride
- Wet etching of silicon dioxide
- Dry etching of silicon dioxide and silicon nitride

No, the answer is incorrect.
Score: 0
Accepted Answers: 
Dry etching of silicon dioxide and silicon nitride

14) Which of the below statements are correct:

i. Dry oxidation is about 5 times faster than wet oxidation
ii. Dry oxidation is mainly used for creating thin oxide layers and wet oxidation for thicker ones
iii. Dry oxidation is used for making field oxide layers and wet oxidation for gate oxides
iv. Dry oxidation gives better quality oxide layers as compared to wet oxidation

- i, ii, iii, and iv
- ii and iv
- ii, iii and iv
- i, ii, and iv

No, the answer is incorrect.
Score: 0
Accepted Answers: 
ii and iv

15) Which of the following is false?

- Contact mode lithography gives better resolution than other two modes
- In contact mode lithography the mask may get contaminated by photoresist.
- Effect of diffraction of light is minimum for contact mode lithography.
- Contact mode lithography is not efficient for batch production.

No, the answer is incorrect.
Score: 0
Accepted Answers: 
Contact mode lithography gives better resolution than other two modes

16) Consider the circuit shown in figure below, compute the output voltage of U₂ op-amp at t = 0.5s

Note: Consider the op-amp is supplied with ± 15 V
No, the answer is incorrect.
Score: 0
Accepted Answers:
10 V