

Started on	Tuesday, 27 August 2024, 1:09 PM
State	Finished
Completed on	Tuesday, 27 August 2024, 1:09 PM
Time taken	17 secs
Marks	4.00/4.00
Grade	10.00 out of 10.00 (100%)

Question 1

Correct

Mark 1.00 out of 1.00

Which of the following can be source for diffusion in silicon?

- ☒ a. Highly doped SiO2 layers ✓
- ☒ b. Dopants implanted into silicon by ion implantation process. ✓
- ☒ c. Dopant containing gases in a high temperature tube furnace. ✓
- ☒ d. Epitaxial layers deposited on silicon. ✓

Your answer is correct.

The correct answers are: Highly doped SiO2 layers, Dopant containing gases in a high temperature tube furnace. , Epitaxial layers deposited on silicon. , Dopants implanted into silicon by ion implantation process.

Question 2

Correct

Mark 1.00 out of 1.00

Assuming that the resistivity of a single crystal silicon film is inversely proportional to the concentration of the dopants in the silicon, which of the following statements are correct?

- ☒ a. The smallest resistivity can be obtained by doping the silicon with arsenic. ✓
- ☐ b. Among the p-type dopants, the smallest resisitivy can be obtained by doping silicon with gallium.

Your answer is correct.

The correct answer is: The smallest resistivity can be obtained by doping the silicon with arsenic.

Question 3

Correct

Mark 1.00 out of 1.00

Assume that a delta layer of phosphorous is placed at 350 micro meter depth in a silicon wafer of 700 micro meter thickness. Subsequently the wafer is heated to high temperature and held at a specific high temperature for about 30 min. Which of the following states are correct?

- ☐ a. A gaussian profile will result if the wafer is intrinsic at the diffusion temperature.
- ☒ b. The resultant profile will be neither a gaussian nor a complementary error function. ✓
- ☐ c. A complementary error function profile will result if the wafer is intrinsic at the diffusion temperature.

Your answer is correct.

The correct answer is: The resultant profile will be neither a gaussian nor a complementary error function.

Question 4

Correct

Mark 1.00 out of 1.00

The active and chemical concentrations of dopants in silicon are always equal.

- ☐ True
- ☒ False ✓

The correct answer is 'False'.

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