★★★ ＜第19回知的財産翻訳検定試験【第9回英文和訳】＞ ★★★

≪１級課題 -電気・電子工学-≫

【解答にあたっての注意】

１．問題の指示により和訳してください。

２．解答語数に特に制限はありません。適切な個所で改行してください。

３．課題文に段落番号がある場合、これを訳文に記載してください。

４．課題は３題あります。それぞれの課題の指示に従い、３題すべて解答してください。

問１． 次の英文クレームを日本語に訳しなさい。

1. A robot cleaner comprising:

a cleaner body which automatically travels in an area to be cleaned;

a suction unit which suctions dust in the area to be cleaned into a specific space included in the cleaner body;

a microbe contamination sensor which detects a microbe contamination in the area to be cleaned to generate a microbe contamination measuring signal; and

a sterilizing unit which sterilizes a corresponding portion according to the microbe contamination measuring signal.

2. The robot cleaner of claim 1, wherein the microbe contamination sensor comprises a gas sensor which senses a particular smell component produced by a microbe to be detected.

3. The robot cleaner of claim 2, wherein the gas sensor comprises:

a substrate;

a sensing layer which is laminated on the substrate and reacts with the particular smell component, thereby causing a resistance variation;

an electrode which is buried on the sensing layer to measure the resistance variation;

a heater which heats the sensing layer to a temperature suitable for measuring the resistance variation;

a filter layer which filters a gas excluding the particular smell component so as not to be mixed into the sensing layer; and

a mesh cap which prevents dust from mixing into the sensing layer.

問２．次の英文を日本語に訳しなさい。

Advances in electrical energy technology are frequently impeded by a lack of appropriate means for electrical energy storage (EES). For example, renewable energy sources such as wind and solar energy could meet a significant proportion of the world's electricity needs, but remain largely untapped for want of viable EES capacity. In addition, large-scale EES will be critical to the success of innovation of the electric power grid.

Although rechargeable batteries are necessary for EES, established battery chemistries are poorly suited for large-scale applications. They store energy in the form of solid reactants as a part of the battery electrodes. Furthermore, the electrodes must undergo physical and chemical changes each time the battery is charged and discharged. These changes impose limits not only on the cycle life but also on the maximum power to be delivered.

Redox-Flow Batteries are rechargeable systems in which the electrochemical reactants are dissolved in liquid electrolytes. The electrolytes stored in external tanks are pumped through a stack of reaction cells where electrical energy is alternately converted to and extracted from chemical energy

in the reactants by way of reduction and oxidation.

The reaction stoichiometry of the two reactants may deviate from a desired relationship. When such a deviation occurs, the RFB electrolytes are said to be "imbalanced", which leads to system inefficiency, either by consuming too much energy or by releasing contaminants into the RFB electrolytes.

問３． 次の英文の段落０００１，０００４、及び０００５を、
添付のＦＩＧ． ２Ｂを参照しつつ、日本語に訳しなさい。

[0001]

So-called trench capacitors have been developed to increase the capacitance of the storage capacitor while increasing the integration density of the memory cells. Various techniques have been employed to connect trench capacitors to surface-located transfer gates. For example, a self-aligned buried strap may be used.

[0002]

As shown in FIGS. 2B, a DRAM cell 50 includes a trench capacitor 55 and a transfer gate 60. The trench capacitor 55 includes a first N+ polysilicon fill 65, a second N+ polysilicon fill 67, and a collar oxide 71.

[0003]

The transfer gate 60 includes N-type source/drain regions 73 and 74 formed in a P-well 75 and a polysilicon gate 77 insulatively spaced from the channel between source/drain regions 73 and 74. A bit line contact 79 electrically connects a source/drain region 73 to a bit line 81. A shallow trench isolation (STI) arrangement 80 electrically isolates DRAM cell 50 from an adjacent memory cell and a passing word line 92.

[0004]

A diffusion region 83 is formed to electrically connect a third polysilicon fill 69 and the source/drain region 74 of

MOS transfer gate 60 by outdiffusing dopants from the highly doped polysilicon fill in the storage trench into the P-well 75. The diffusion region 83 and the third polysilicon fill 69 constitute a buried strap 98 for connecting the trench capacitor 55 to the transfer gate 60. The strap 98 may protrude less than 0.1 micrometer laterally into the P-doped well 75 and vertically no more than the thickness of the STI 80 which isolates this cell from adjacent cells.

[0005]

Typically, the strap 98 that connects the storage plate to the pass gate 77 in a DRAM cell is formed in a conventional thermal process which allows the N(or P)-type dopants present in the trench to diffuse upwards through the storage plate and into the P-doped well 75 through a narrow opening. The dopants cannot diffuse through the oxide collar 71. The object of the process is to limit the size of this outdiffused buried strap region by impeding the flow of N-type dopants into the P-type well region.

【電気・電子工学　問３　図面】

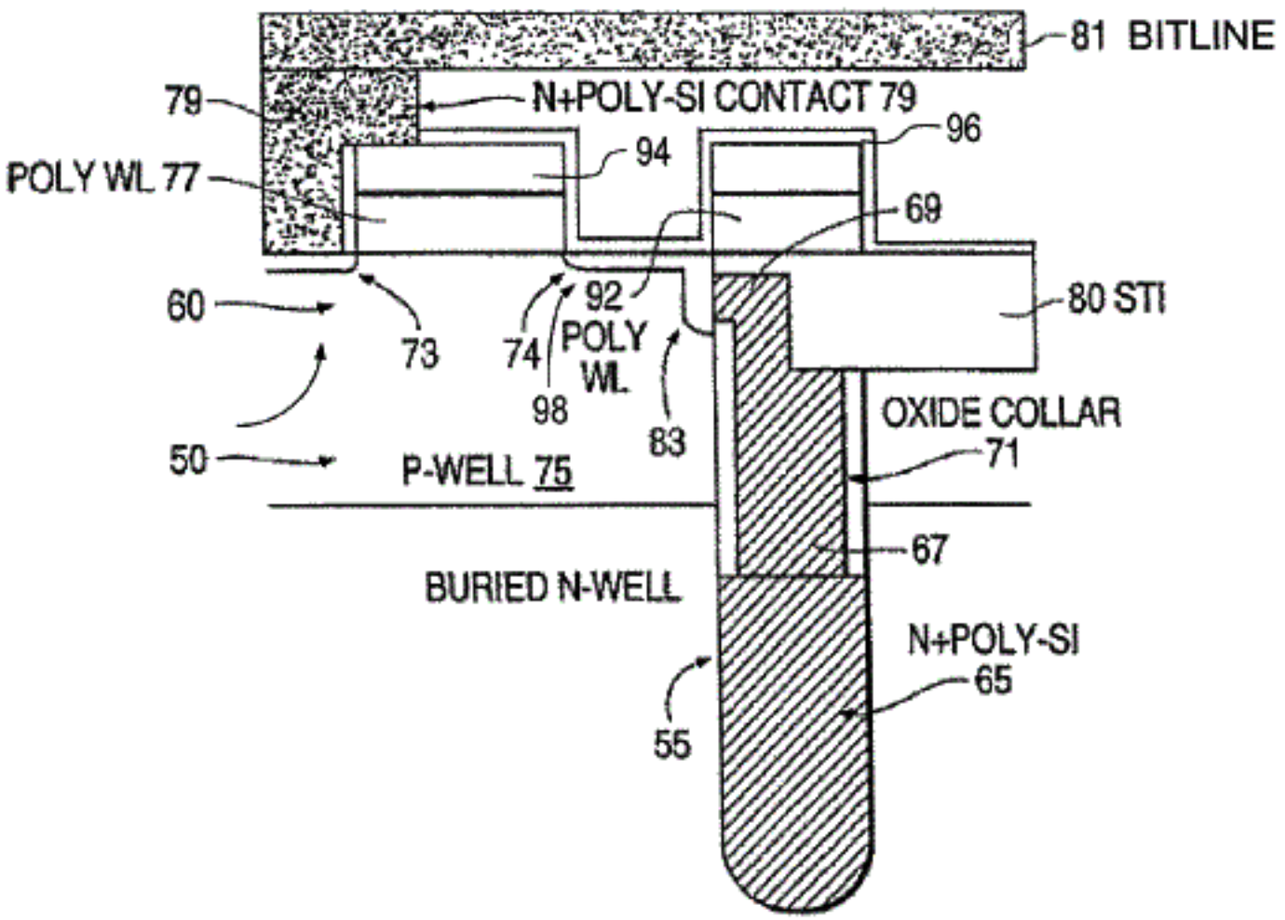

FIG. 2B