

Final Examination
05 October, 2021

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Section: C
BIO 3105

01 @

The substances we give up in the environment which can be harmful for us are -

① Poly chlorinated Biphenyls (PCB)

② Heavy metals like - lead, mercury etc.

③ Dicloro-di phenyl Trichloroethane
(DDT)

P.T.O

1(b)

Two RNA based vaccines for covid 19 are:-

- ① Johnson & Johnson's Janssen \rightarrow 1 dose
- ② Moderna \rightarrow 2 doses (minimum 2 week interval)

1(c)

Enzymes that needed to prepare a DNA sample before pushing it through gel electrophoresis are:-

- ① Ribonuclease
- ② Lysozyme.
- ③ Protease
- ④ Chitinase
- ⑤ cellulase

1@

The goods that I would like to protect
against biopiracy that is native to

Bangladesh are:-

- ① Neem
- ② Turmeric
- ③ Basmati rice
- ④ Veterinary antibiotics
- ⑤ Bio pesticides.
- ⑥ Bio fertilizers.

Q1 (e)

Sugar intake can be controlled by:-

Avoiding the consumption of foods and drinks which are containing high amount of sugar. Such as, snacks which have high amount of sugar, like candy, sugar sweetened beverages.

Eating fresh fruit and raw vegetables as snacks instead of sugary snacks.

Be mindful of condiments such as ketchup and barbecue sauce, which can be high in sugar. and opt for lower sugar option such as salsa, mustard or hot sauce. Read food labels and research menus online to avoid high sugar options.

03@

Weight = 95 kg

height = 130 cm = 1.3 m

$$\text{BMI} = \frac{95}{(1.3)^2} = 56.21 \text{ kg m}^{-2}$$

The woman has a gestational diabetes and BMI range is so high. Gestational diabetes can affect her and her baby's health. The effect can be for long term and also can be short term. So, in this case, I think the woman has to change her diet. She has to eat a healthy snack or meal every 3 hours or so on. Eating delicious and healthy food can help her to control her blood sugar level because gestational diabetes can increase her blood sugar level.

P.T.O

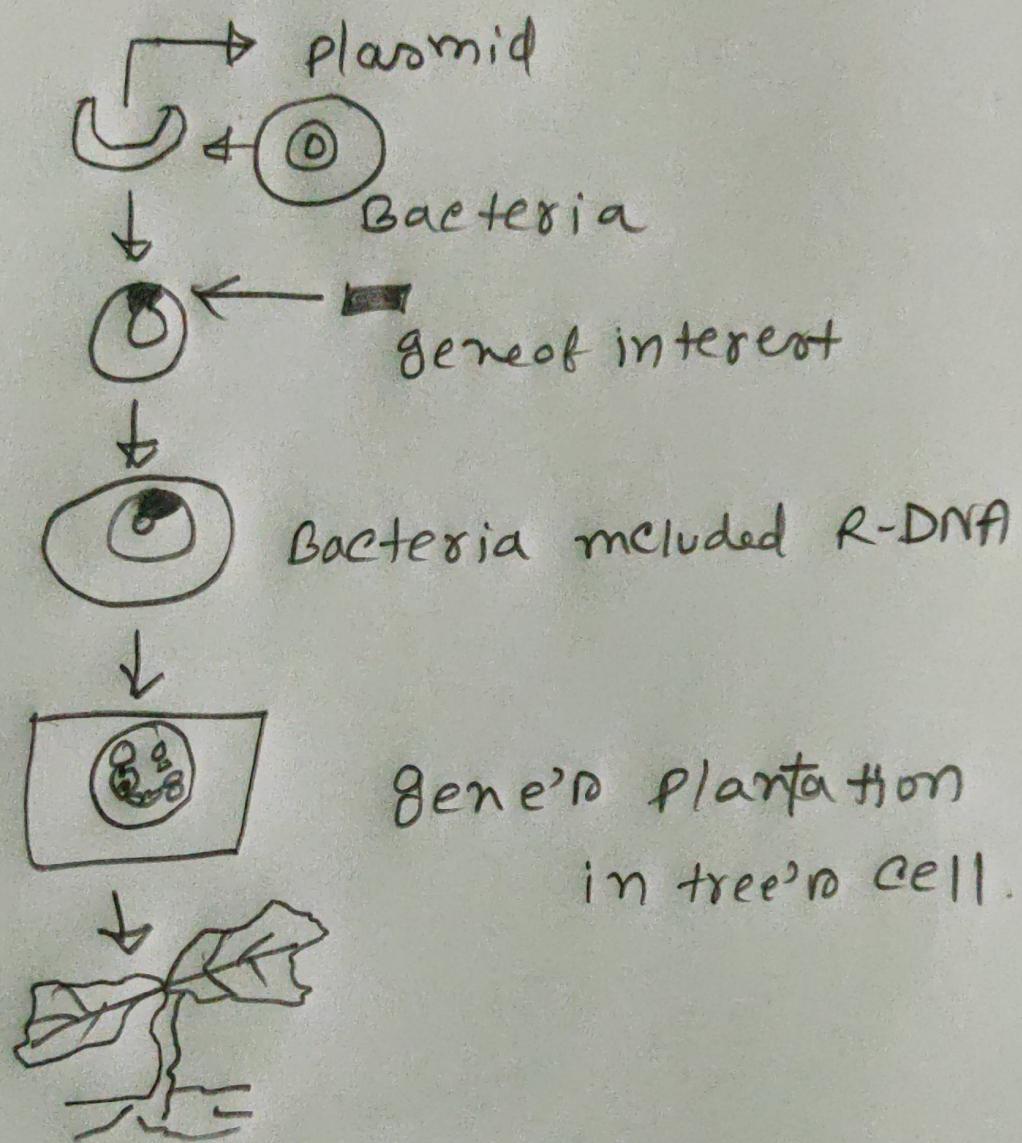
So, she has to careful while choosing food, she should be avoid some food from her list, like raw cheeses, milk, meat, poultry, eggs, seafood and fish with high mercury and also caffeine. To maintain a good diet may eat hard cheeses, pasteurized soft cheeses and milk. By this way, she have to follow and have to change her diet in this stage of her life.

Q3(b)

competent host is recombinant DNA technology is Agrobacterium cell.

competent host cell is required for transformation with recombinant DNA. Different types of available host cells are like E-coli, yeast, animal and plant cell. Eukaryotic cell will be preferred host, yeast cells are preferred because this are simply eukaryotic organism and like bacteria are single-cells, easy to grow manipulated. Bacteria also acts enabled to pick up the recombinant DNA.

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02 @

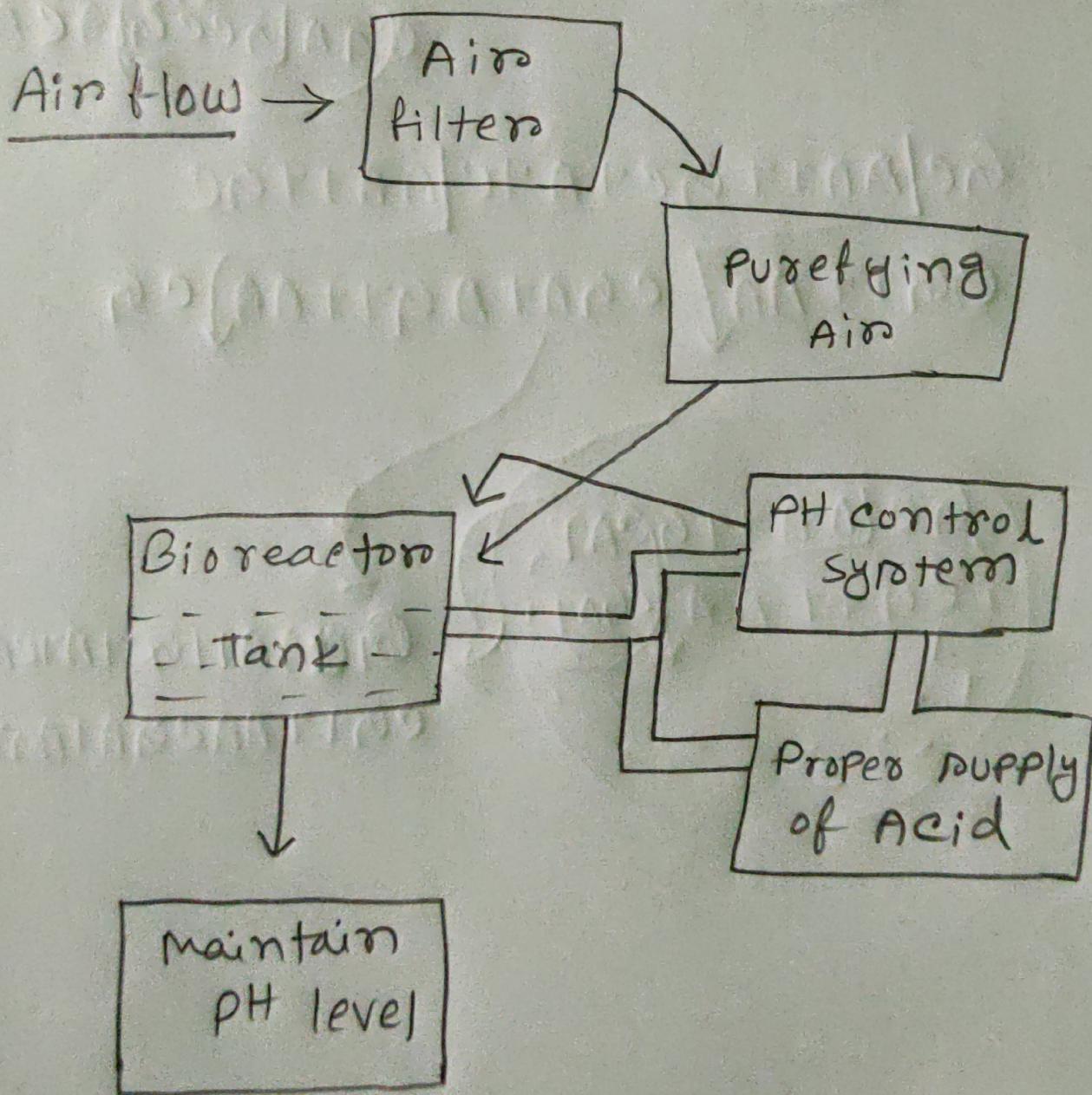
Yes, I think I have scope to give my input as a computer engineer in personalized drug design.

current computer-aided drug design aims to publish all the latest developments in drug design based on computational techniques. The field of computer-aided drug design has had extensive impact in the area of drug design.

Computer aided drug design could benefit from a greater understanding of how errors arise and propagate in Biomolecular modeling.

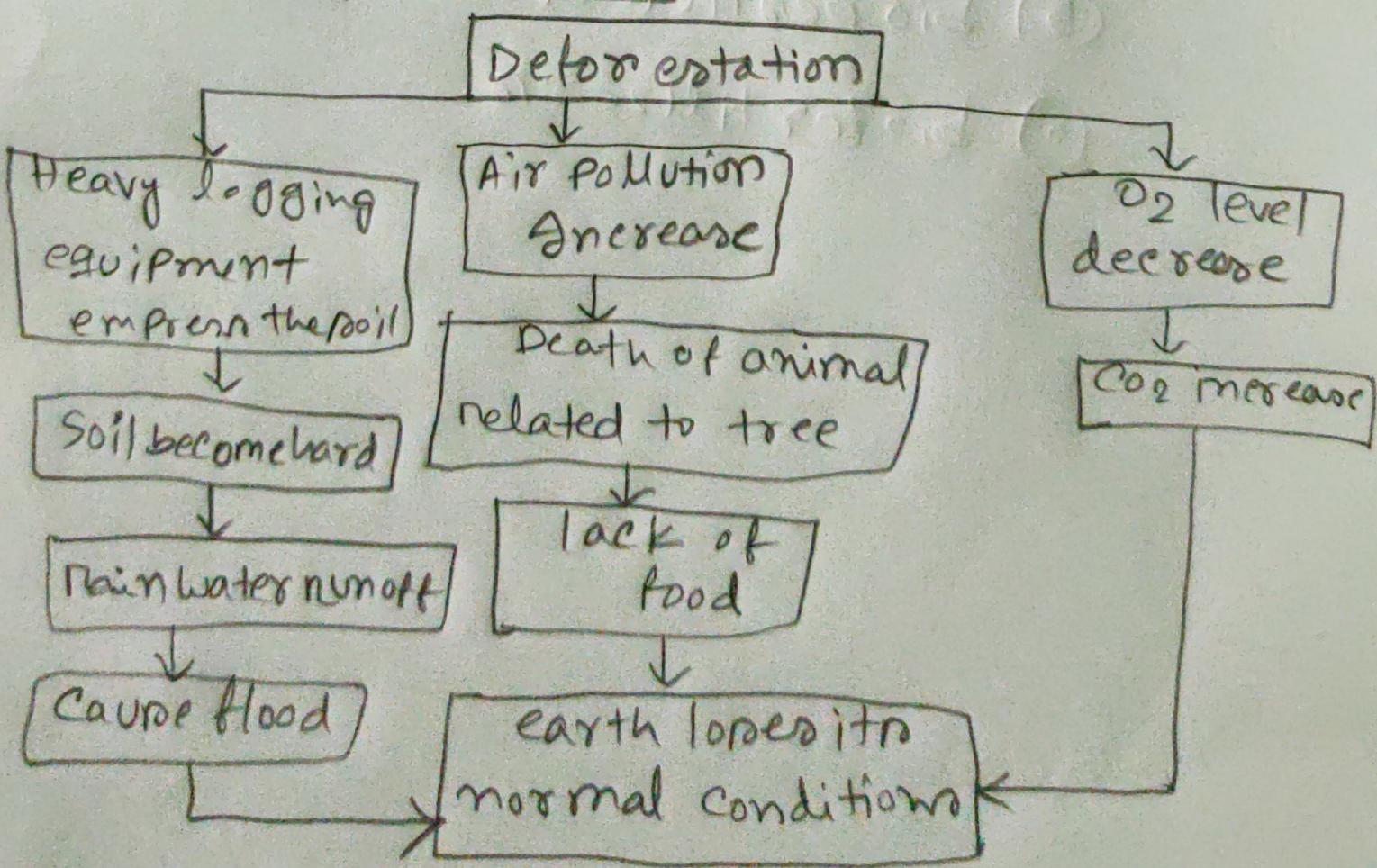
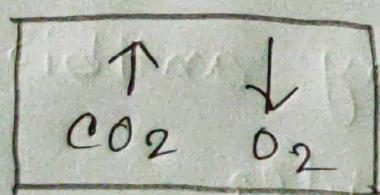
O2 (b)

pH balance in a bioreactor.



O2 C

Deforestation involves large scale of cleaning up of land to generate space for various purpose. We know that, because of deforestation, O₂ level in earth is decreasing day by day. And carbon dioxide level is increasing. So, we can say that, deforestation,



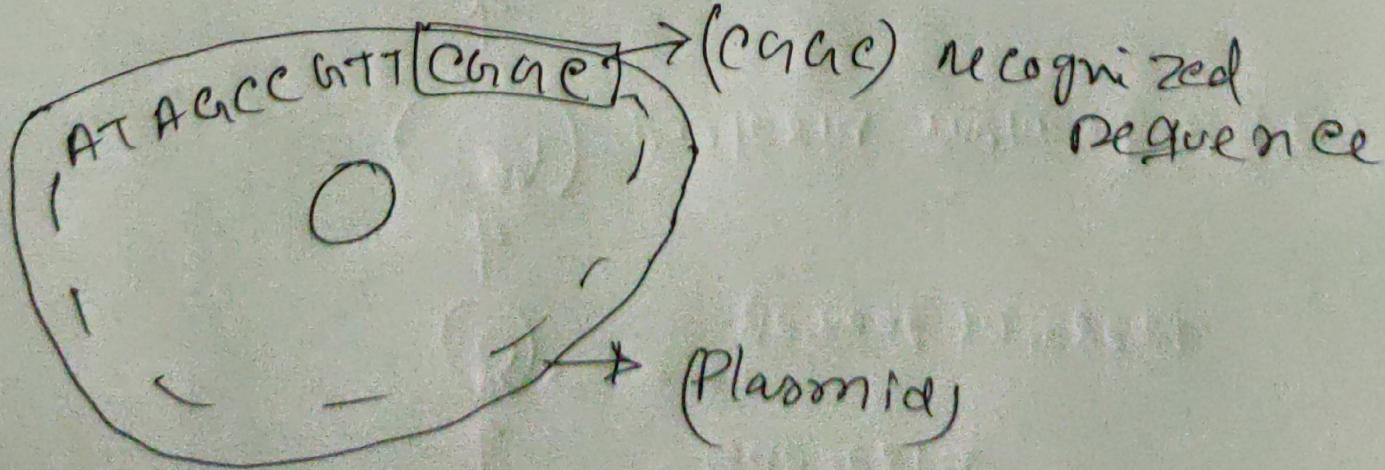
2(d)

Here,

restriction enzyme that has a recognition sequence CAGC.

Main DNA

ATAACGATA [CAGC] CGTATTATGCAATGCATT
TATTGCTAT [GCCG] GCATTATACGTTACATAAT [GCCG]
(Complementary) TCGAGCATATTA



Sticky end ATTACGATACCGCAGC. . . CAGC CGTATTAA
TAATGCGCCG . . . CGCCG ACATAT.

02@

We can plan in this way for a child diet who might need food from outside, from 3 months to 1 year.

From 3rd month, we have to give the baby small amount of rice or demi roasted rice, barley, banana, apple etc.

From 6th to 8th month, we have to give the baby black, red and pink beans, mangoes etc.

From 8th to 10th month, we have to give him millets, Pasta, cherries etc.

From 10th to 12th month we have to give him fruits, corn, a little bit hard food can be given him. We have to continue to give him healthy food in which the baby shows interest in.