



# United International University

## School of Science and Engineering

Final Examination; Year 2021; Trimester: Summer

Course: BIO 3105; Title: Physics; Sec: A-C

Full Marks: 25; Time: 1 hr 15 mins + 15 mins uploading time

*There are Four Questions, 1 and 2 are mandatory to answer, and answer 3 or 4 (anyone). Please upload your answer as a pdf file with a name "Sp2021\_ID\_Sec".*

1. (a) Write down the substances we give up in the environment which can be harmful for us. 1 CO1  
(b) Write down two of the US based vaccines for COVID-19 with doses. 1 CO1  
(c) Write down the enzymes needed to prepare a DNA sample before pushing it through gel electrophoresis. 1 CO1  
(d) Write down the goods you would like to protect against biopiracy that is native to Bangladesh (Naming 4 would be sufficient). 1 CO1  
(e) Write down the specific ways to control your sugar intake. 1 CO1
2. (a) Do you think you have scope to give your input as a computer engineer in personalized drug design? Give details. 3 CO3  
(b) Show pictorial view of the pH balance in a bioreactor. Also show how you will maintain necessary air supply. 3 CO3  
(c) Deforestation plays a vital role in the land based ecosystems. Sketch the flow diagram(s) to show the resistance and resilience of a land based ecosystem after deforestation. 3 CO3  
(d) Suppose you have a restriction enzyme that has a recognition sequence CGGC. How you would complete the rDNA for a given sequence of one strand as below show in a pictorial view (You need to complete the DNA with a complementary strand before starting the process). 3 CO3  
ATAACGATACGGCCGTATTATGCAATGCATTACGGCAGCCGTATAAT  
(f) Suppose you have a child in the family. If from three months the child needs food from outside, how you would plan the diet from three months to one year (only name the foods for specific months)? 3 CO3
3. (a) Do you think we need a change in diet for a 95 kg 130 cm pregnant woman? Give reasons and possible changes you want to recommend in diet. This person has a gestational diabetes (diabetes in pregnancy period). 3 CO2  
(b) Mention the name of the characteristics of a competent host. Explain how you would apply a complete rDNA to a plant (mention only the names of the means you are going to use). 2 CO2
4. (a) Give the equations for chemosynthesis and photosynthesis. Which one of these two do you think vital for ecosystems on earth? Give reasons in brief. 3 CO2  
(b) Do you think pandemic can potentially spread out from the ecosystem? Give reasons from the concept of ecosystem dynamics. 2 CO2

CO1: Define/Justify/Sketch/Name different biological quantities with examples.

CO2: Explain/Show/Discuss the various biological systems.

CO3: Apply the knowledge of biological systems in a real life problem.