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RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. Honours in Applied Biology

Third Year – Semester II Examination – July 2020

MIB 4206 – MOLECULAR BIOTECHNOLOGY

Time: Two (02) hours

Answer ALL questions.

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1. Discuss how key control points and key enzymes can be manipulated by metabolic engineering in order to favorably direct the carbon flux towards a metabolite of industrial interest in a biochemical pathway of your choice. **(100 marks)**

2. Describe why recombinant proteins are often expressed as fusion proteins instead in their native form. **(100 marks)**

3. You are presented with an environmental problem relating to the infestation of natural water bodies of North Central province with the invasive weed *Eichornia crassipes* (water hyacinth). Propose a detailed strategy to control the hyacinth infestation that would eventually lead to harnessing its biomass for bioenergy production. **(100 marks)**

4. a) What type of a molecular vaccine would be most suitable against a pathogenic non-enveloped virus? **(10 marks)**

   b) Briefly outline the best strategy to develop the molecular vaccine you suggested with justifications. **(90 marks)**

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