

0040

**THE OPEN UNIVERSITY OF SRI LANKA  
FACULTY OF HEALTH SCIENCES  
DEPARTMENT OF PHARMACY  
ACADEMIC YEAR 2019/2020 – SEMSETER I**



**BACHELOR OF PHARMACY HONOURS  
BPU4141- PHARMACEUTICAL BIOTECHNOLOGY AND GENETIC  
ENGINEERING  
FINAL EXAMINATION  
DURATION: TWO HOURS**

---

**DATE: 14<sup>th</sup> SEPTEMBER 2020**

**TIME: 01.30 PM – 03.30 PM**

---

**Part B (30 marks)**

01.

1.1 What are the essential elements of an expression vector? (05 marks)

.....  
.....  
.....  
.....  
.....

1.2 Name two reporter genes (04 mark)

I.....  
II.....

1.3 Name three (03) different types of cloning vectors and their relative insert sizes (06 marks)

I.....  
II.....  
III.....

02.

2.1 Give three (03) expected benefits of genomic medicine. (06 marks)

I.....  
II.....  
III.....

2.2 Name the two (02) approaches of target validation in drug discovery. (04 marks)

I.....  
II.....

2.3 State three (03) applications of cell culture.

(03 marks)

I.....

II.....

III.....

2.4 Provide the two (02) basic modes of actions used in the antibiotic classification

(02 marks)

I.....

II.....

**Part C (40 marks)**

01.

1.1 Consider statement; "Researchers were able to clone a gene". What is meant by the term "clone"? (02 mark)

1.2 Compare and contrast genomic library with cDNA library. (06 marks)

1.3 Briefly explain the principle behind blue white colony selection. (08 marks)

1.4 Assume that you have constructed a genomic library of a pathogenic bacterium having a genome of 50 Mb using a plasmid vector of 10 kb insert size. Using the genome equivalent theory, determine how many genomic clones must be screened to find your gene of interest at 99% confident? (04 marks)

02.

2.1 Briefly explain the metabolic role of the following hormones. (10 marks)

- a. ACTH/ Adrenocorticotrophic hormone
- b. Thyroid hormone

2.2 With an appropriate example briefly explain the importance of phramacogenomics. (05 marks)

2.3 Explain the functional importance of Single nucleotide polymorphisms (SNPs) in human genome. (05 marks)