



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2016/2017

**FOURTH YEAR FIRST SEMESTER EXAMINATIONS FOR
THE DEGREE OF BACHELOR OF SCIENCE IN
PHARMACEUTICAL SCIENCE WITH INFORMATION
TECHNOLOGY**

MAIN CAMPUS

PPS 419: MOLECULAR PHYSIOLOGY

Date: 13th December, 2016

Time: 3.30 - 6.30 pm

INSTRUCTIONS:

- Answer ALL questions in SECTION A and TWO questions in SECTION B.

PPS 419: Molecular Physiology

Instructions

1. This examination is divided into TWO sections.
2. Answer ALL questions in section A
3. Answer the first question in Section B, plus ANY OTHER one question
4. For all attempted questions, credit will be given for short concise answers with clearness in expression
5. Indicate the question numbers on the front page of the answer booklet in the order in which you have answered them
6. Mobile phones, tablets and all other electronic gadgets with portable documents are PROHIBITED in the examination room
7. All necessary rough work must be done in the answer booklet provided, DO NOT write anything on the question paper

SECTION A: Answer ALL questions (40 Marks)

1. Write short notes on the following terminologies
 - a. Saltatory conduction [3 marks]
 - b. G protein coupled receptors [3 marks]
 - c. Osteomalacia [3 marks]
2. Identify TWO human hemoproteins and indicate their functions [4 marks]
3. Describe the role of bone in calcium homeostasis [4 marks]
4. Outline the steps that take place during muscle contraction [5 marks]
5. List any four processes that can lead to the activation of proto-oncogenes to oncogenes [4 marks]
6. Describe briefly, the mode of action of the sodium ion channel in nerve cell membranes [5 marks]
7. Explain how the Human Immunodeficiency Virus (H.I.V) may induce certain forms of cancer in infected individuals [5 marks]
8. Identify and describe two photoreceptors of the human eye [4 marks]

SECTION B: Answer Q9 and ANY other ONE question (30 Marks)

9. You're part of a group of students on an exchange visit to a European university tasked to give a talk on the physiological roles of the human liver that are of pharmaceutical importance. Identify FIVE headings that you will include in your PowerPoint slides and highlight the bulletins you will put under each heading.

[20 marks]

10. Identify any ONE clinical disorder associated with iron metabolism and discuss how it is manifested, mentioning any possible involvement of genes (if any) that may be linked to the condition.

[10 marks]

11. Discuss in details how vision is perceived in the presence of light and in the darkness.

[10 marks]