MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACEUTICAL SCIENCES WITH INFORMATION TECHNOLOGY

MAIN CAMPUS

PPS 218: HETEROCYCLIC CHEMISTRY

Date: 29th November, 2016 Time: 12.00 - 3.00 pm

INSTRUCTIONS:

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

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(MAIN CAMPUS)

PPS 218: HETEROCYCLIC CHEMISTRY

BSC PHARMACEUTICAL SCIENCES

INSTRUCTIONS:

- This paper consists of two sections.
- Section A consists of SAQs and carries 30 marks; ANSWER ALL.
- Section B consists of LAQs and carries 40 marks: ANSWER TWO QUESTIONS, **QUESTION ONE IS COMPULSORY.**

SECTION A: 40 MARKS: SHORT ANSWER QUESTIONS (SAQS)
ANSWER ALL QUESTIONS

1. Describe **any 5** physical properties of pyrrole. (5 marks).
2. Explain **Paal-Knorr synthesis** of pyrrole with relevant chemical equations. (5 marks)
3. Explain **any 2** chemical reactions of quinoline with relevant chemical equations. (5 marks)
4. Explain **any 2** methods of pyridine synthesis with relevant chemical equations.(5 marks)
5. Write short notes on the pharmacological importance of the pyridine. (5 marks)
6. Describe **any 2** methods of benzofuran synthesis. (5 marks)
7. Differentiate between electron donating groups and electron withdrawing groups with relevant examples. (5 marks)
8. Differentiate between electrophilic reactions and nucleophilic reactions with relevant examples. (5 marks)

SECTION B: 30 MARKS: LONG ANSWER QUESTIONS (LAQS)

ANSWER TWO QUESTIONS IN THIS SECTION, QUESTION ONE IS COMPULSORY.

1. (a) Discuss **any 4** electrophilic substitution reactions of thiophene with relevant chemical equations (12 marks)

   (b) Explain **any 3** uses of pyrillium salts. (3 marks)

2. (a) Describe **any 2** methods for furan synthesis with relevant chemical equations (10 marks)

   (b) Describe **any 2** chemical reactions of furan with relevant chemical equations (5marks)

3. (a) Describe the **Fischer Indole** method for Indole synthesis with relevant chemical equations (6 marks)

   (b) List **any 5** physical properties of indole. (5 marks)

   (c) List **any 4** naturally occurring indole substances. (4 marks)