

**NATIONAL OPEN UNVERSITY OF NIGERIA**

**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA**

**FACULTY OF SCIENCES**

**DEPARTMENT OF PURE & APPLIED SCIENCES**

**2018\_2 EXAMINATION QUESTIONS**

**COURSE CODE: CHM 318**

**COURSE TITLE: NATURAL PRODUCT CHEMISTRY I.**

**COURSE UNIT: 2**

**INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER 3 QUESTIONS.**

**Time allowed 2 Hours**

Q1. a). Enumerate threee(3) importance of terpenes **(4.5 marks)**

b). Draw the structures of the following sesterpenes

1. Phiobolin **(2 marks)**
2. Gascardic acid **(2 marks)**
3. Cerosplastol **(2 marks)**

 c). Write briefly on the tetrahydrocannabinol **(3 marks)**

 d). Write brief note on the following:

(i). Sex hormone **(2 marks)**

(ii). Corticosteroids **(2 marks)**

(iii). Anabolic steroid **(1 mark)**

 e). Explain the Mevalonic acid pathway **(5 marks)**

 f). Copy and complete the following table **(1.5 marks)**

|  |  |
| --- | --- |
| **Alkaloid** | **Effect** |
| Ajmaline |  |
| Morphine |  |
| Quinine |  |

Q2. a). What are terpenes? **(4 marks)**

 b). Explain briefly the five(5) class of alkaloids **(6 marks)**

 c). Explain the term alkaloids? **(3 marks)**

 **(d)**. State the main synthetic steps for the production of muscarin alkaloids **(2 marks)**

Q3 a). Staring from IPP and DMAPP show the synthesis of lanostreol **(6 marks)**

 b). Describe the concept “True alkaloids” **(3.5 marks)**

 c). Present the biological role of alkaloids **(5.5 marks)**

Q4. ai). Differentiate between terpenes and terpenoids with example **(2 marks)**

 ii). State the main synthetic steps for the production of piperidine-derived alkaloids

**(2 marks)**

 **b).** Write on the triterpenes squalene **(7 marks)**

 c) Explain in details the monoterpene class of terpenes **(4 marks)**

Q5. a). Describe the biosynthesis of terpenes **(6 marks)**

 b). State the main synthetic steps for the production of pyrroliidine-derived alkaloids **(2 marks)**

 c). Differentiate between the two major types of steroids **(4 marks)**

 (ii). Explain how steroids are degraded and eliminated from the body.**(3 marks)**