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Total Number of Pages: 02

**MSc**  
**16MCYF407**

**4<sup>th</sup> Semester Regular Examination– 2017-18**  
**CHEMISTRY OF NATURAL PRODUCTS**  
**BRANCH: M.Sc.(AC)**  
**Time: 3 Hours**  
**Max marks: 70**  
**Q Code:C254**

**Question No.1 which is compulsory and any five from the rest**  
**The figures in the right hand margin indicate marks.**

- Q1** Answer the following questions: **(2 x 10)**
- a) What is Hofmann exhaustive methylation method? Give its importance in alkaloid chemistry.
  - b) State special isoprene rule with examples.
  - c) The total synthesis of Penicillin during the second world war was a daunting challenge for organic chemists. Substantiate.
  - d) Cite the name of the plant species that is the source of Tylophorine.
  - e) What is the main structural difference in the structures of abietic acid and Levopimaric acid? How can one differentiate one from the other?
  - f) Codeine gives no color with FeCl<sub>3</sub> solution, whereas Morphine gives a Positive test. Rationalize.
  - g) Write down the structures of all the four products when a simple flavone is boiled with conc. KOH solution.
  - h) State the major differences in the structures of Quinine and Quinotoxine.
  - i) "Prostaglandins are the wonder drugs of the 20<sup>th</sup> century". Substantiate.
  - j) Write down the structures of the final product when 2-chloroacrylonitrile is allowed to react with cyclopentadiene followed by treatment with KOH/H<sub>2</sub>O/DMSO solution.
- Q2** Discuss all the steps involved in the total synthesis of Quinine by Woodward **(10)**
- Q3** Elucidate the structure of Tylophorine and give one of its rational synthesis. **(5+5)**
- Q4** Write a critical account on the total synthesis of Penicillin-V as put forward by Sheehan **(10)**
- Q5**
- a) Write down the structure of Corey's lactone with all stereochemical features. **(2)**
  - b) Give a short account on the total synthesis of Corey's lactone starting from cyclopentadiene. **(8)**
- Q6**
- a) How will you establish the position of -COOH group in Abietic acid? **(6)**
  - b) Give the synthesis of Homoretene starting from Naphthalene. **(4)**

**Q7** Discuss the ingenious synthesis of Colchicine as suggested by Van Tamelan. **(10)**

**Q8** **Write short notes on**

- a) Kostanecki synthesis of Flavones. **(4)**
- b) General methods of determination of the structure of Terpenoids. **(6)**