Con. 1806–08. Medicinal Chemistry-IV BB–3709

Sem VI 29/4/08

2007-08 (2 Hours) [Total Marks : 35

T.Y.B.Pharm

N.B. : (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions from the remaining **six** questions.
(3) **Figures** to the **right** indicate **full** marks for that question or sub-question.

1. Give one example with structure of the following : (any **seven**) **7**
   (a) A drug combination for the treatment of leprosy.
   (b) An antimalarial which is an acridine derivative
   (c) A 2nd generation cephalosporin
   (d) An amoebic agent which is a derivative of acetanilide
   (e) An antimetabolite of uracial
   (f) A sulfonamide used in burn therapy
   (g) An azole antifungal agent
   (h) A Mucleoside RT inhibitor which is an analog of thymidine.

2. (a) Draw the structure, give the generic name and write the therapeutic use of the following : (any **three**) **6**
      (i) 4,4'–Diaminodiphenylsulfone
      (ii) 8–[(4–amino–1–methylbutyl) amino]– 6–methoxy quinoline
      (iii) 1–[2–(Ethylsulfonyl]–2–methyl–5–nitroimidazole
      (iv) Methyl–5–benzoyl–benzimidazole–2–carbamate.
   (b) Mention the antibiotic obtained from S. orchidaceus (give structure). **1**

3. (a) Mention the essential structural features of the macrolide antibiotics. **3**
   (b) Give reactions to show how the alkylating agent procarbazine is activated in nino. **3**
   (c) Give one example of a topoisomerase II inhibitor (structure to be drawn). **1**

4. (a) Give the structure of the active cinchona alkaloids and mention their essential stereochemical configurations. **4**
   (b) Give an example of an anticancer antibiotic and state its mechanism of action (no structure to be drawn). **2**
   (c) Give an example with structure of an acid resistant semisynthetic penicillin. **1**

5. (a) Outline the lifecycle of the HIV virus and mention the pathways unique to this virus. **3**
   (b) (i) Mention the structural features of streptomycin **2**
      (ii) Give an active analog of streptomycin. **1**
   (c) Give the mechanism of action of amantadine. **1**

6. State whether the following statements are 'true' or 'false'. Correct those that are 'false'. **7**
   (a) Cephalexin is poorly absorbed as compared to cephaloglycin.
   (b) In the 2,4–diaminopyrimidine series substituents at position 6 do not affect antimalarial activity.
   (c) Substitution of the secondary butyl moiety in ethambutol by a testiary butyl moiety reduces activity.
   (d) Linezolid is a bread spectrum anthelmintic agent.

7. Outline the synthesis of any **two** of the following. The synthetic procedure should be minimum three steps and all reagents and approximate reaction conditions to be mentioned : **7**
   (a) Cyclophosamide
   (b) Ampicillin