

(2hours)

Total Marks: 40

Note:

1. Question No. 1 is **Compulsory**.
2. Attempt any **four** from remaining **six** questions.
3. Write **chemical** structures wherever applicable.

1. Answer the following questions. Draw structures where appropriate (**any Eight**) (08)

- (a) Name the enzyme inhibited by cycloserine
- (b) Write the generic name and structure of a sulfonamide used for burn therapy.
- (c) Give an example of a drug combination used to treat malaria
- (d) Give generic name and structure of orally active penicillin
- (e) List various types of Phase-I metabolic reactions
- (f) Write the structure and generic name of an anti-leprotic drug
- (g) Write structure and chemical name of chloramphenicol
- (h) Give an example of a drug whose enantiomers differ in activity
- (i) Write the generic name and structure of an antifungal drug with a triazole ring

2. (a) Write the structure, generic name and use of following compounds:- (**Any two**) (04)

- (i) 5-amino-1-cyclopropyl-7-[3,5-dimethylpiperazin-1-yl]-6,8-difluoro-4-oxoquinoline-3-carboxylic acid
- (ii) 6-(2-Ethoxy-1-naphthyl) penicillin
- (iii) Diaminodiphenylsulfone

(b) Write the mechanism of action along with chemical reactions involved (**any two**) (04)

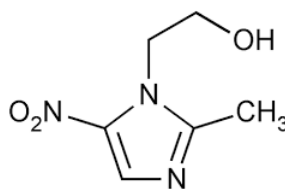
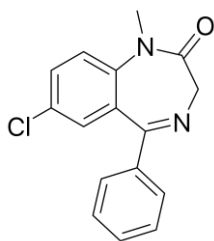
- (i) Ethionamide
- (ii) Pyrimethamine
- (iii) Fluconazole

3. (a) Outline synthesis of following by giving reagents and reaction conditions. **(any two)** (06)

- (i) Clotrimazole
- (ii) Ethambutol
- (iii) Ciprofloxacin

(b) Aged solutions of tetracycline are inactive. Justify (02)

4. (a) Predict the structure of any two Phase I metabolites for each of the following: (04)



(b) Briefly explain **any two** of the following Phase-II pathways with suitable reactions (04)

- i. Methylation
- ii. Glucuronide conjugation
- iii. Acetylation

5. (a) Explain the relationship of following physicochemical properties to drug action. (04)

- (i) Bioisosterism
- (ii) Optical isomerism

(b) Classify antimalarial agents giving one example from each class. (04)

6. (a) Discuss degradation pathway of tetracycline (04)

(b) Discuss any four points of SAR of Fluoroquinolones with suitable examples. (04)

7. Explain the following in brief. (08)

- (i) Structural feature of Macrolide antibiotics
- (ii) Polyene antifungal agents
- (iii) Combination therapy for tuberculosis
- (iv) Role of ionisation in biological activity
