

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: B. PHARM.
BRANCH: PHARMACY**

SUBJECT: BP601T MEDICINAL CHEMISTRY III - THEORY

**SEMESTER: VI
SESSION: SP 2024**

TIME: 3.00 Hours

FULL MARK: 75

INSTRUCTIONS:

1. The missing data, if any, may be assumed suitably.
2. Before attempting the question paper, be sure that you have got the correct question paper.
3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
4. This question paper consists of (03) three parts. Read the part wise instructions before attempting the questions.

PART-I

Objective types questions (Instruction: Answer all questions)

Q1. (10 x 2 = 20 Marks)

- A. Write the **definition** and **aims** of structure-based drug design.
- B. Differentiate between pharmacophore and auxophore.
- C. Write the different steps in a flowchart involved in the process of drug discovery and development.
- D. Why azoles are selectively toxic to fungal cell membranes but not humans. Give reason.
- E. Answer True OR False:
 - i. Allyl amines like Naftifine show a fungicidal effect by inhibiting squalene epoxidase.
 - ii. Ivermectin effectively treats onchocerciasis (river blindness) in humans.
- F. Classify the antitubercular drugs.
- G. Define mutual prodrug with example.
- H. Recall any two example of orally active beta-lactamase resistant penicillin.
- I. Draw the structure of Amoxicillin and mention its nomenclature according to USP.
- J. Mention the mode of action of tetracyclines.

PART-II

Short Answers

(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

- Q2. Explain the mechanism of actions and uses of Sulphonamides.
- Q3. Write the synthesis of Dapsone.
- Q4. Write the uses, mechanism of action, and adverse effects of Mebendazole.
- Q5. Write the synthesis of Diethylcarbamazine citrate.
- Q6. Explain Hansch's Analysis. Give examples.
- Q7. Write a note on carrier-linked prodrug with example.
- Q8. Write a note on beta-lactamase inhibitors.
- Q9. Classify antimicrobial agents based on chemical structures and provide at least one examples for each class.
- Q10. Write a note on broad-spectrum penicillin.

PART-III
Long Answers
(Instruction: Answer two out of three questions)

(2 x 10 = 20 marks)

- Q11. Write the Structure-Activity Relationships (SAR) of sulphanilamide. Write the limitations of Sulfa-drug.
- Q12. Discuss the chemical degradation of Penicillin.
- Q13. Describe the mode of action of Penicillin in details. Write the synthesis of Chloramphenicol. (6+4)

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