

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

CLASS: B. PHARM.
BRANCH: PHARMACY

SEMESTER: VI
SESSION: SP/2023

SUBJECT: BP601T MEDICINAL CHEMISTRY III

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 handbook/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.
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PART-I

Objective types questions (Instruction: Answer all questions)

Q1. (10 x 2 = 20 Marks)

- A. Amphotericin B is a _____-membered macrocycles polyene and natamycin is a _____-membered ring polyene.
- B. 1,2,4-triazoles appear to cause a lower incidence of _____ effects and _____ than the corresponding imidazoles.
- C. Solutions of metronidazole hydrochloride are unsuitable for _____ administration because of their extreme _____.
- D. Lincomycins are _____ antibiotics isolated from *Streptomyces lincolnensis* binding to the _____ subunit of bacterial ribosomes.
- E. Quinine is metabolized in the _____ to the 2'-hydroxyl (carbostyryl) derivative, followed by additional _____ on the quinuclidine ring to provide the 2,2'-dihydroxy derivative as the major metabolite.
- F. Quinolones were of little clinical significance until the discovery that addition of a _____ group to 6 positions of basic nucleus greatly increased the _____ activity.
- G. _____ character of a drug can be measured experimentally by testing the drug's relative _____ in an octanol/water mixture.
- H. The main cause of deterioration of penicillin is the reactivity of the strained _____ ring, particularly by _____.
- I. The important members of the _____ group are derivatives of an octahydronaphthacene, a hydrocarbon system that comprises of four annulated _____-membered rings.
- J. _____ synthesis designed to produce mixtures of different compounds within each reaction vessel and _____ synthesis produce a single product in each vessel - favoured, because easy to identify the structures that are synthesized.

PART-II
Short Answers
(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

- Q2. Enumerate the mechanism of action of different class of antibiotics with suitable examples of each class.
- Q3. Discuss the reasons for the narrow-spectrum activity of B-lactam antibiotics.
- Q4. Discuss the Mechanism of Action (MoA) of aminoglycosides antibiotics with suitable diagram.
- Q5. Discuss the types of prodrugs with suitable examples of each class.
- Q6. Discuss the chemistry, therapeutic uses, and toxicity of cinchona alkaloids.
- Q7. Write down the synthesis of Ciprofloxacin.
- Q8. Discuss the Structure Activity Relationship (SAR) of Ethambutol.
- Q9. Write down the synthesis of metronidazole.
- Q10. Discuss various statistical methods applied in QSAR.

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

(2 x 10 = 20 marks)

- Q11. Explain the importance of Hammett Substitution Constant (σ) and Hydrophobicity Constant (π) in QSAR approach using suitable examples.
- Q12. Explain the complete Life cycle of Malarial parasite with suitable flowchart.
- Q13. "Combinatorial and parallel synthesis have become established tools in drug discovery and drug development", elaborate the above sentence with suitable examples and advantages of both Solid-Phase and Solution-Phase Synthesis.

:::24/04/2023:::M