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

CLASS: B. Pharm. **SEMESTER: VI**
BRANCH: PHARMACY **SESSION: SP/2022**

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.**

PART-I
Objective types questions (Instruction: Answer all questions)

Q1. (10 x 2 = 20 Marks)

A. The lethal antibacterial action of ß-lactam antibiotics is due to the selective inhibition of _____. Specifically, it inhibits the biosynthesis of _____ which provides strength and rigidity to the cell wall.

B. PBP 2 - transpeptidase involved in maintaining the _____ in bacilli. Inhibition causes _____ forms which undergo lysis.

C. Cephalosporin is a close congener of Penicillin N containing _____ ring instead of _____ ring of the penicillin.

D. Orally activity can also be conferred in certain Cephalosporins by _____ of the 4-carboxylic acid group to form _____ stable, lipophilic esters that undergo hydrolysis in the plasma.

E. _____, where active drug is linked to a carrier group. Carrier group should be labile, non-toxic, and biologically inactive. It is further divided to bipartite, _____ and mutual prodrugs.

F. Malaria in humans is caused by four species of Plasmodium (protozoan parasite) *Plasmodium vivax, Plasmodium* _____, *Plasmodium malariae* and *Plasmodium* _____.

G. Most drugs used in modern malarial chemotherapy as chloroquine, amodiaquine, pyrimethamine, quinine, sulfonamides, act primarily at the _____ stage in the malaria life cycle (i.e., at site _____).

H. Quinolones were of negligible clinical significance until the discovery that the addition of a _____ group to the _____ position of the primary nucleus significantly increased the biologic activity.

I. Isoniazid inhibits the synthesis of _____ (branched ß-hydroxy fatty acid) that are important constituents of the mycobacterium cell wall- It causes the bacilli to lose _____ content.

J. Evolution of CADD began in 1900s when _____ (1894) and _____ (1909) propagated the concept of receptors and lock and key mechanisms.

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

(7 x 5 = 35 Marks)

Q2. Discuss the Mechanism of Action (MoA) of aminoglycosides antibiotics with a suitable diagram.
Q3. Describe the design aspects of penicillinase-resistant penicillin.
Q4. Discuss the essential requirements and advantages of Solid-Phase Synthesis.
Q5. Describe the role of Virtual Screening in Drug Discovery.
Q6. Discuss the historical development and nomenclature of sulfonamides.
Q7. Write down the chemistry, therapeutic uses, and toxicity of any two azole anthelmintics.
Q8. Discuss the effective treatment regimen for tuberculosis and the cardinal rules for all TB regimens.
Q9. Describe the importance of fluoroquinolones as Urinary Tract anti-infection agents.
Q10. Discuss the spectrum of activity and the infections in which macrolides are used.

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

(2 x 10 = 20 marks)

Q11. Explain ligand-based pharmacophore modeling with a suitable example.
Q12. Explain the Structure-Activity Relationship (SAR) of cinchona alkaloids.
Q13. Explain in detail the Chemical Degradation of Penicillin.

:::::25/04/2022:::::