

- (ii) Yobyrine
 (iii) 5-hydroxyisophthalic acid
 (b) Outline the synthesis and biosynthetic route of
 Nicotine. 6+6

Roll No.

Total Pages : 04

LMDQ/M-24

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ORGANIC CHEMISTRY SPECIAL-VI

Paper : CHEM-404

Time : Three Hours]

[Maximum Marks : 60

Note : Attempt *Five* questions in all, selecting at least *one* question from each Section. All questions carry equal marks.

Section A

1. (a) What are neurotransmitters ? Give two examples.
 (b) What is the role of receptors in execution of drug action ? Discuss, how the receptors are controlled ?
 (c) Discuss the concept of bioisosterism. Explain giving examples. 2+6+4

2. (a) What are partial agonists ? Explain giving examples.
 (b) With reference to the structure-activity relationships discuss the effect of hydroxyl group, alkylation/dealkylation and amino group in drug designing.
 (c) Giving specific examples, explain the concept of lead molecule. 3×4=12

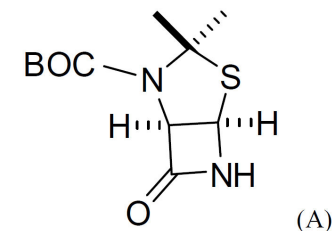
Section B

3. Give Synthesis and General Mode of Action of the following drugs : $3 \times 4 = 12$
- (a) Verapamil
 - (b) Cyclophosphamide
 - (c) Celecoxib.
4. Write down General Mode of Action and Medicinal uses of the following drugs : $4 \times 3 = 12$
- (a) 3TC
 - (b) Methotrexate
 - (c) Chlorthalidone
 - (d) Norethindrone.

Section C

5. (a) Discuss the problems related with penicillin G. Explain, how these problems have been solved in penicillin V, amoxicillin, carfecillin and oxacillin ?
- (b) Discuss the mode of action with specific mention of site of action of tetracyclines, macrolides, aminoglycosides and chloramphenicol. $8+4$

6. (a) Write down the synthesis of (A) from L-cysteine.



- (b) Explain, how the presence of β -lactam ring was established during the structure elucidation of penicillin G ?
- (c) Which enzyme is targeted by penicillins ? Discuss the mode of action. $6+4+2$

Section D

7. (a) Discuss the role of HI in general structure elucidation of alkaloids.
- (b) Write down the structure elucidation of meroquinene.
- (c) Explain the stereochemistry at C-8 and C-9 centres of Quinine. $3 \times 4 = 12$
8. (a) Explain how the formation of the following products during various degradative methods, has been helpful in structure elucidation of reserpine :
- (i) 4-Methoxy-N-oxalyl anthranilic acid