

M.Sc. CHEMISTRY
Fourth Semester (Repeat)
ORGANIC CHEMISTRY (SP2) - V
(MSC – 403 A)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20
Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any *four* from *Question no. 2 to 8*
Question no. 1 is compulsory.

- (a) What are anti-inflammatory drugs? What is their common mechanism of action? (3)
- (b) Explain how lidocaine can be synthesized. (3)
- (c) Write the synthesis of Diltiazem. (2)
- (d) Write the cause of bacterial resistance to antibiotic. How this problem can be solved? (2)
2. What are Chloramphenicol and from where they could be isolated? Describe the SAR and mode of action of Chloramphenicol. Starting from *p*-nitroacetophenone how could you synthesize Chloramphenicol? (10)
3. Write short notes on the following: (2.5×4=10)
 - (a) Isoflurane
 - (b) Procaine
 - (c) Oxeprenolol
 - (d) Trimeprazine
4. (a) How can you differentiate Local anaesthetics and General anaesthetics? (2)
- (b) What are antidepressants? How isocarboxazide is synthesized? (3)
- (c) What are the categories of Local anaesthetics depending on the method of administration? Explain. (5)

5. (a) Give the structure and synthesis of Isoniazide. The drug is active against which disease? Give its mechanism of action. (5)
- (b) Write the down the steps involved for the synthesis of Diazepam. (5)
6. (a) Give a short account of drug metabolism or drug excretion. (5)
- (b) Write the structure of Ibuprofen. Give its synthesis. It belongs to which class of drug? (1+3+1=5)
7. (a) Write a short note on Thiopental sodium. (5)
- (b) What is chemotherapy? Write the side effects of it. (5)
8. (a) How histamine is produced in body? What are the consequences of histamine production in human body? Name a few antihistaminic drugs. (2+2+2=6)
- (b) What is isosterism? Give short account of classical bio-isosterism. (4)

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Duration: 20 minutes

Marks – 20

(PART A - Objective Type)

I. Choose the correct answer:

1×20=20

i) Potency of a drug expressed in terms of its concentration as:

- (a) $1/C$ (b) $\log 1/C$ (c) $\log C$ (d) $\log C^2$

ii) Hammett substitution constant is affected by:

- (a) Resonance (b) Inductive effect
(c) Mesomeric effect (d) All of these

iii) Look for the pair which is not isosters:

- (a) F and H (b) -OH and -SH
(c) $-\overset{\text{O}}{\parallel}{\text{C}}-$ and $-\overset{\text{S}}{\parallel}{\text{C}}-$ (d) $-\overset{\text{O}}{\parallel}{\text{C}}-$ and $-\text{N}=\overset{\text{O}}{\parallel}$

iv) Any given drug will express its activity through:

- (a) Enzyme inhibition (b) binding with specified cell receptors
(c) Binding with DNA (d) any of these

v) Activity of a drug can be affected by its:

- (a) Polarity (b) Stereo Chemistry
(c) Hydrophobicity (d) All of these

vi) Ampicillin belong to the class of:

- (a) β -lactam antibiotics (b) Tetracycline antibiotics
(c) Macrolide antibiotics (d) None of these

vii) Antibiotic activity of penicillin is mainly due to:

- (a) Cyclic and planar β lactum ring
(b) Cyclic and non-planar β lactum ring
(c) -COOH group present
(d) five member ring containing sulfur atom.

viii) In which of the following a β -lactum ring is attached with a six membered cyclic system?

- (a) Penicillin N (b) Cephaloporsin C
(c) Tetracyclin (d) Clavulanic acid

ix) Diazepam is a class of:

- (a) Anti-inflammatory drug (b) Antitubercular drug
(c) Anti-neoplastic drug (d) Trianquilizers

x) Streptomycin is obtained from:

- (a) Streptomyces carpreolus (b) Streptomyces venezulae
(c) Streptomyces orchidaceus (d) Streptomyces griseus

xi) The penicillin has -COOH group and amido group respectively at the:

- (a) C-3 and C-5 (b) C-3 and C-6
(c) C-6 and C-3 (d) C-2 and C-6

xii) Mehtylation of Nordiazepam in presence of CH_3I in DMF gives:

- (a) Haloazepam (b) Oxxazepam
(c) Diazepamn (d) Clonazepam

xiii) The anti-neoplastic drug effective in Hodgkin's disease is:

- (a) Cyclophosphamide (b) Melphalan
(c) Mechlormethamine (d) Paclitaxol

xiv) Indomethacine is a:

- (a) Sulpha drug (b) Anti biotic drug
(c) Anti inflammatory drug (d) Steroidal drug

xv) Tuberculosis is caused by a class of micro organism belonging to:

- (a) Fungus (b) Bacteria
(c) Virus (d) None of these

xvi) Benzocaine belongs to which of the following class?

- (a) Esters
(b) Amides
(c) Piperidine or Tropane derivatives
(d) None of the above

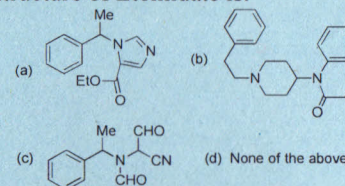
xvii) The isomer of Enflurane is:

- (a) Isoflurane (b) Halothane
(c) Thiopental sodium (d) None of these

xviii) Fluoxetine is:

- (a) Antidepressant (b) General anaesthetics
(c) Local anaesthetics (d) None of the above

xix) The structure of Etomidate is:



xx) Mrthohexetal sodium is:

- (a) Local anaesthetics
- (c) Intravenous anaesthetics

- (b) Antidepressant
- (d) Inhalation anaesthetics



University of Science and Technology, Meghalaya

Date Stamp: _____

SESSION 2016-17 COURSE _____ PAPER CODE: _____ NAME OF THE PAPER: _____ SEMESTER _____																												
Instructions to Candidates		For Objective Type Questions																										
1. This answer booklet has 4 pages. Please check before writing whether it is complete or in good condition. 2. Do not write your name anywhere in the answer booklet. 3. Write legibly on both sides of the paper 4. You may use some space for any rough notes or calculation on the answer booklet if you need. These rough notes, calculations must be scored out before submitting the answer booklet. 5. Do not bring any book or loose paper in the examination hall. 6. Do not tear any page from the answer booklet. 7. Do not write anything on the question paper or blotting paper or any pieces of paper while you are in the examination hall. 8. Any act of indiscipline or misbehavior in the examination hall will result in your expulsion. 9. No examinee is allowed to leave the examination hall until 30 minutes lapse after the commencement of the examination. 10. Additional answer sheet will be supplied after the main answer booklet is completed.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Page No.</th> <th style="width: 50%;">Marks</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr> <td style="text-align: center;">Total</td> <td> </td> </tr> </tbody> </table>	Page No.	Marks																			Total		Session: 2016-17 Course _____ Roll No. _____ Enrollment No. _____ Semester _____ Name of the Paper _____ _____ Paper Code _____				
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