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PGIVS-N 1064 A-18

M.Sc. IVth Semester Examination

ORGANIC CHEMISTRY

(Medicinal Chemistry)(CBCS)

Paper : SCT - 4.2

(New)

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

1) *All questions are **compulsory**.*

2) *All questions carry **equal** marks.*

1. Answer any **EIGHT** of the following : **(8×2=16)**

a) What are diuretic agents? Give an example.

b) What are drug receptors?

c) Write the structure of any two semisynthetic penicillins.

d) What are non - norcotic analgesics?

e) How nitrogen mustards act as antineoplastic drugs?

f) What are nudeoside? Write any nucleoside structure.

g) Give any two examples for non - steroidal antifertility agents.

h) Mention biological importance of Vitamin A.

i) What are antibiotics? Give an example.

j) Write the structures of prostaglandin PGE_3 and give its systematic name.

2. a) Discuss the drug metabolism in human body.

b) Give an account of metabolic changes in drugs.

c) Explain the mode of action of antidepressant and diuretics.

OR

c) Write a note on vasodiators. **(5+5+6=16)**

3. a) Outline the synthesis of benzomorphan and methodone.

b) Give the synthesis and mode of action of Mestranil.

c) Explain induced fit theory of drug action.

OR

c) Explain the synthesis of antipyrine and its mode of action. **(5+5+6=16)**

4. a) Explain the synthesis and mode of action of Norfloxacin.

b) Discuss the mechanism of action of β - lactum antibiotics.

c) Outline the synthesis of chloramphenicol.

OR

c) What are antineoplastic agents? Give the synthesis and mode of action of cyclophosphamide. **(5+5+6=16)**

5. a) Write a note on recombinant DNA technology.

b) Explain the biological importance of vitamins.

c) Discuss double helical structure of DNA.

OR

c) How do you show the presence of cyclopentanone ring, presence and position of -OH group in PGE_1. **(5+5+6=16)**

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PGIVS-O 1065 A-18

M.Sc. IVth Semester Examination

ORGANIC CHEMISTRY

(Medicinal Chemistry)(CBCS)

Paper : SCT - 4.2

(Old)

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

*1) All questions are **compulsory**.*

*2) All questions carry **equal** marks.*

(8×2=16)

1. Answer any **EIGHT** of the followings :

a) What are anti - hypertensive drugs? Give example.

b) Mention the factors influencing drug metabolism.

c) Give the synthesis of antipyrine.

d) Write the structure of morphine and benzomorphine.

e) Write the products obtained when penicillin -V is treated with hydrochloric acid at reflux temperature.

f) Highlight the role of cis - and trans - platines.

g) What are steroidal sex hormones? Give example.

h) Outline the biosynthesis of any one monoterpene.

i) Draw the structure of norfloxacin and mention any two uses of it.

j) How pethidine is synthesized?

2. a) Explain the functions of antidepressants and anxiolytics.

b) Give an account of pharmacokinetics and its applications.

c) Enumerate the relationship of chemical structure and biological activity with respect to oral contraceptives.

OR

c) Write briefly on :

i) Metabolic changes of drugs

ii) Vasodilators. **(5+5+6)**

3. a) Discuss the use of computer in drug design.

b) What are sulfa drugs? Give the synthesis and mode of action of sulfaisoxazole.

c) Write a note on modern theories of drug action.

OR

c) i) What are analgesics? Outline the synthesis of phenazocine.

ii) Give a brief account of non - steroidal anti - fertility drugs. **(5+5+6)**

4. a) What are antineoplatic agents? How cyclophophamide is synthesized? Mention its mode of action.

b) Discuss the mode of action and uses of the following :

i) Rifamycin.

ii) Amoxicillin.

c) Describe the structure of chloramphenicol.

OR

c) Outline the synthesis of the following :

i) Chlorambucin.

ii) 5 -fluorouracil. **(5+5+6)**

5. a) Enumerate biogenesis of glucose - 6 - phosphate.

b) How indole alkaloid is biosynthesized?

c) Explain the steps involved in the biogenesis of simple lipids and phospholipids.

OR

c) Describe light and dark path way of carbohydrates. **(5+5+6)**

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PGIVS-O 1061 A-18
M.Sc. IVth - Semester Examination
ORGANIC CHEMISTRY
(Recent Methods in Organic Synthesis) (CBCS)
Paper : HCT - 4.1
(Old)

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

1) *Answer **all** questions.*
2) *All questions carry **equal** marks.*

1. Answer any **Eight** of the followings : **(8×2=16)**

a) Write retrosynthetic analysis of acetone cyanohydrin.

b) Differentiate between synthons and synthetic equivalents with examples.

c) Give mechanistic synthesis of methylbenzoate from Benzoyl chloride and diazomethane.

d) What is Gilman's reagent? Give an application.

e) How PCC is prepared? Mention its importance.

f) What are reducing agents? Mention any four reducing agents.

g) What is Pauson - Khand reaction?

h) Outline the synthesis of 2 - carboethoxycyclopentanone from adipic acid.

i) What is Rosenmund reduction? Explain with suitable example.

j) Explain two group disconnection approach with suitable example.

2. a) Write retrosynthetic analysis and synthetic route for 6 - methoxyindole - 3 - acetic acid and pirindol.

b) Discuss the synthesis of substituted 1,2, - and 1,4 - bifunctional compounds using C-C disconnection approach.

c) What is one group C-X disconnection? Discuss application in the synthesis of substituted 1,3 - bifunctional compound.

OR

c) Explain retrosynthetic analysis and suggest appropriate synthetic route for the following compounds.

i) 6 - Methyl quinoline.

ii) Benzocaine. **(5+5+6=16)**

3. a) What are organozinc compounds? Discuss any two organozinc reactions with mechanism and its application.

b) Write a note on the following reagents :

i) Organo - magnesium halides and

ii) Aluminiumisopropoxide.

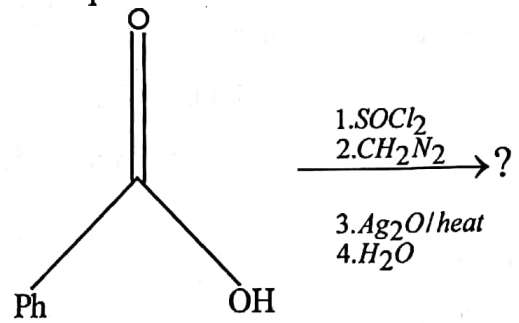
c) Discuss the application of the following reagents :

i) Trimethylsilyl iodide and Peterson reaction.

OR

c) Predict the product with suitable mechanism for the following reaction:

i)



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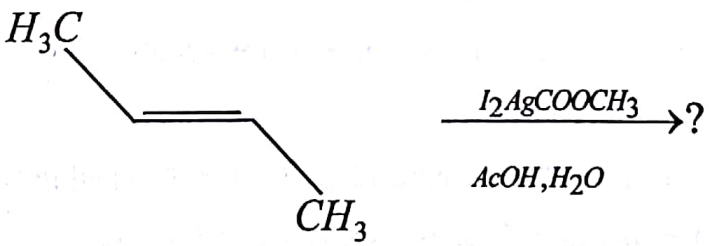
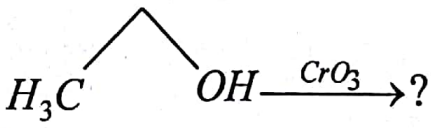


(5+5+6=16)

4. a) Suggest the product with suitable mechanism for the following reaction

i)



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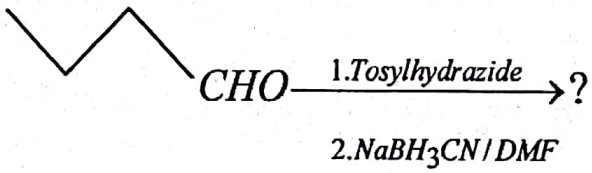


b) Write a note on following agents with suitable example and mechanism.

i) Trialkylborohydride

ii) Chiral hydride reagents.

c) Give an application for each of the following.

i) Alkoxysulphonium salts

ii) Oppenaur oxidation

iii) Sharpless epoxidation.

OR

c) What is Birch reduction? Discuss the applications of it. (5+5+6=16)

5. a) With suitable example and mechanism explain the following name reaction.

i) Junjappa - IIa aromatic annulation

ii) Heck reaction.

b) Write brief notes on the following :

i) Clemensen reduction

ii) Hoffman - Loffler - Freytag reaction.

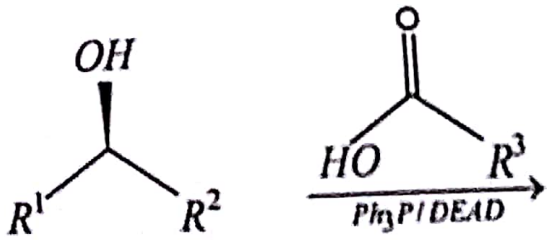
c) Discuss the following :

i) Robinson annulations.

ii) Reduction with hydrazine.

OR

c) i) Suggest the product and give suitable mechanism for the following reaction.



ii) Write a note on Simon - Smith reaction. (5+5+6=16)

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PGIVS-N 1060 A-18

M.Sc. IVth - Semester Examination

CHEMISTRY/ORGANIC CHEMISTRY

(Recent Methods in Organic Synthesis) (CBCS)

Paper : HCT - 4.1

(New)

Time : 3 Hours Maximum Marks : 80

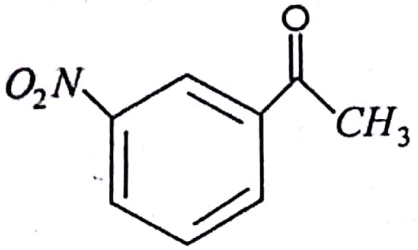
Instructions to Candidates:

1) *Answer all questions.*

2) *All questions carry equal marks.*

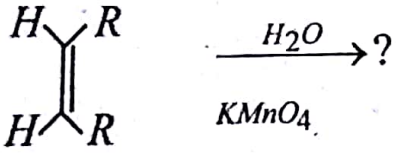
1. Answer any **eight** of the following : (8×2=16)

a) What is synthon? Give the synthetic equivalents for the following :



b) Define Functional group interconversion with an example.

c) Predict the products in the following reaction

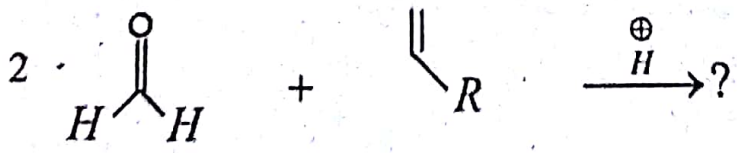


d) What is 9-BBN? Write its structure.

e) How is HIO_4 used in the structural elucidation of carbohydrates?

f) Illustrate Oppenauer oxidation with an example.

g) Complete the following reaction.



h) Illustrate Huisgen 1,3 - dipolar cycloaddition with an example.

i) Give an example of Clemmensen reduction.

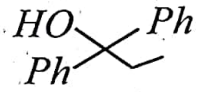
2. a) Propose a synthetic route for benzocaine using retrosynthetic analysis (RSA) using RSA.

b) Suggest a synthetic route for 6 - methoxy indole 3 - acetic acid.

c) Carry our RSA of Pirindol and suggest a forward synthesis.

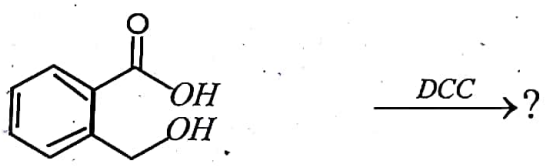
OR

c) Predict the synthetic equivalents and propose a method of synthesis for following compound. **(5+5+6=16)**



3. a) Discuss the synthetic applications of SeO_2.

b) Predict the product with a reasonable mechanism for the following reaction.

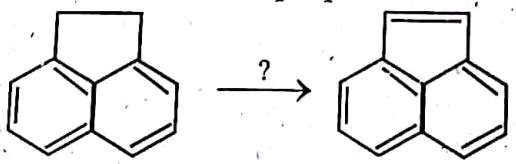


c) Discuss the Sharpless epoxidation reaction and its synthetic applications.

OR

c) Predict the reagent and propose the mechanism for the following :

i)



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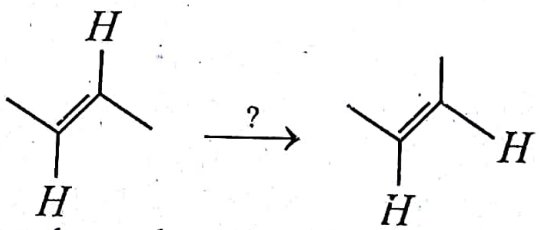
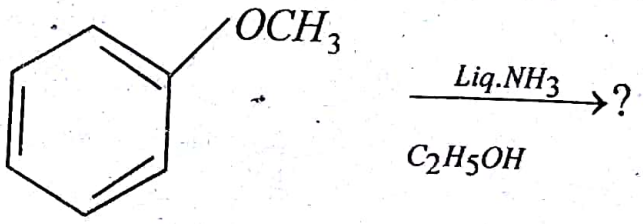


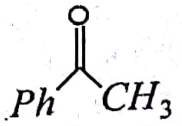
(5+5+6=16)

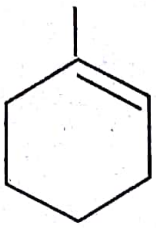
4. a) Suggest the product(s) and propose the mechanism for the following :



b) Discuss the mechanism and synthetic applications of Wilkinson Catalytic reduction.

c) Complete the following with a reasonable mechanism.

i)  + $NH_2NH_2 \longrightarrow ? \xrightarrow[\Delta]{aq.KOH} ?$

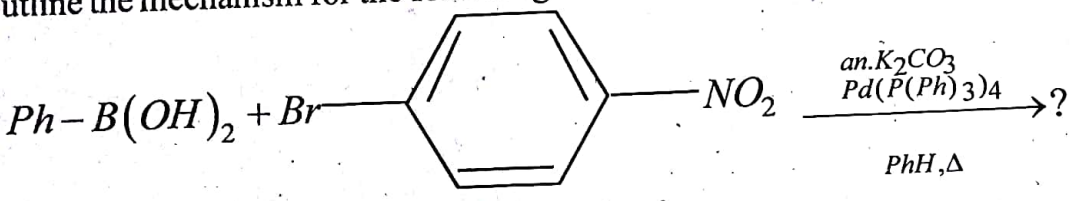
ii)  + $B_2H_6 \xrightarrow{THF} ? \xrightarrow[OH]{H_2O_2} ?$

(5+5+6=16)

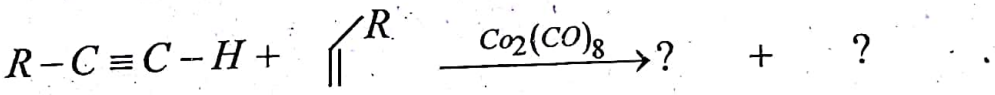
OR

c) Write a comparative account of LAH and $NaBH_4$ as reducing agents.

5. a) Outline the mechanism for the following reaction.



b) Predict the product(s) with a reasonable mechanism.



c) Discuss the mechanism and synthetic applications of Heck arylation.

OR

c) Write a note on Robinson Annulations. (5+5+6=16)