September 2009

[KV 804] **Sub. Code: 3804**

DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION

(Regulations 2008 - 2009)

(Candidates admitted from 2008-2009 onwards)

FIRST YEAR

Paper IV – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 383804

Time : Three hours **Maximum : 70 marks**

Answer All questions

I. Essay Questions : **(2 x 20 = 40)**

1. a) Explain the nucleophilic substitution reactions with suitable examples.
   b) Add a note on mechanisms and kinetics involved in SN^1 and SN^2 reactions.

2. Explain the mechanisms of following name reactions.
   a) Benzoin condensation.
   b) Wittig reaction.
   c) Cannizaro reaction.
   d) Kolh's reaction.

II. Write Short Notes : **(6 x 5 = 30)**

1. Preparation, tests for purity, assay and uses of aspirin.
2. Explain the reaction mechanisms of sandmeyer's reduction with suitable examples.
3. Explain the bimolecular displacement mechanism for nucleophilic aromatic substitution with suitable examples.
4. Explain the conversion of acid to acid chloride and aid to esters with suitable examples.
5. Describe the effect of substituent groups on aromatic nucleus.
6. Outline any two methods of preparation of ketones.

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March 2010

[KW 804] **Sub. Code: 3804**

DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION

(Regulations 2008 - 2009)

(Candidates admitted from 2008-2009 onwards)

FIRST YEAR

Paper IV – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 383804

Time : Three hours **Maximum : 70 marks**

Answer All questions

I. Essay Questions : **(2 x 20 = 40)**

1. Explain the preparation of alcohol with special reference to gniguard synthesis, reduction of carbonyl compounds, acids and esters.

2. Explain the mechanisms of following name reactions.
   a) Claisen condensation.
   b) Knorvenagel reaction.
   c) Michael addition.
   d) Perkin condensation.

II. Write Short Notes : **(6 x 5 = 30)**

1. Explain fries rearrangement and hofmann rearrangement.
2. Preparation, tests for purity, assay and uses of methyl salicylate.
3. Explain the diazotization and coupling reactions of amioes.
4. Explain the 1,2 addition and 1,4 addition reactions of conjugated dienes.
5. Outline the important chemical properties of aldehydes.
6. What are cycloalkanes? Give egs. How the cycloalkanes are prepared?

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September 2010

[KX 804] **Sub. Code: 3804**

DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION

(Regulations 2008 - 2009)

(Candidates admitted from 2008-2009 onwards)

FIRST YEAR

Paper IV – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 383804

Time : Three hours **Maximum : 70 marks**

Answer All questions

I. Essay Questions : **(2 x 20 = 40)**

1. a) Write the Mechanism, reactivity, orientation of aromatic electrophilic substitution reaction with suitable examples.

   b) Explain briefly about hybridization.

2. a) Why are aldehydes more reactive than ketone? Give an account of the nucleophilic additions of aldehyde with the help of general mechanism.

   b) What are Organometallic compounds? How they are prepared? Give its synthetic applications.

II. Write Short Notes : **(6 x 5 = 30)**

1. Give the general methods of preparations of alcohols with examples? How will you differentiate between 1º, 2 º, 3 º alcohols?
2. Explain the following reactions:
   i) Cannizaro reaction ii) Diel's Alder reaction.
3. Give the preparations of Ethers by Williamson's synthesis.
4. Add a note on Isomerism.
5. Explain Bayer's Strain Theory.
6. Add a note on Free Radicals.

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May 2011

[KY 804] **Sub. Code: 3804**

DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION

(Regulations 2008 - 2009)

(Candidates admitted from 2008-2009 onwards)

FIRST YEAR

PAPER IV – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 383804

Time : Three hours **Maximum : 70 marks**

Answer All questions

I. Essay Questions : **(2 x 20 = 40)**

1. Describe the two mechanisms of aliphatic nucleophilic substitution reactions. Compare and contrast these two reactions in detail.

2. Describe in detail free radical halogenation of methane explaining the thermodynamics of the reaction with respect to the halogens: F, Cl, Br, & I.

II. Write Short Notes : **(6 x 5 = 30)**

1. Preparation, tests for purity, assay, and uses of Aspirin.
2. Aldol condensation and cyanohydrin reaction of aldehydes.
3. Explain Sandmeyer's reaction with suitable examples.
4. Two methods of preparations of aldehydes.
5. Explain Schotten-Bauman reaction.
6. Write a note on the advantages of Friedal Crafts Acylation over Alkylation.

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October 2011

[KZ 804] **Sub. Code: 3804**

DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION

FIRST YEAR

PAPER IV – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 383804

Time : 3 hours (180 Min) **Maximum : 100 marks**

Answer ALL questions in the same order.

I. Elaborate on :	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. (a) Define Electrophilic aromatic substitution reaction. Explain the mechanism of nitration, sulphonation, halogenation and Friedel craft's alkylation reactions with examples.	17	40 min.	20
(b) Write a note on activating and deactivating O, P, and M directing groups.			
2. (a) Compare aliphatic nucleophilic bimolecular and unimolecular reaction. (SN_2 vs SN_1).	17	40 min.	20
(b) Explain the mechanism and kinetics of 1, 2 Elimination reactions. (E_2 and E_1).			
II. Write notes on :			
1. Write a note on Markownikoff's rule and Peroxide effect.	4	10 min.	6
2. Explain about electrophilic addition of conjugated dienes. (1, 2 versus 1, 4 addition).	4	10 min.	6
3. Write about the mechanism of Cannizaro's reaction with example.	4	10 min.	6
4. Define polarity of molecules and intermolecular forces with examples.	4	10 min.	6
5. Explain Bayer's strain theory with its merits and limitations.	4	10 min.	6
6. Explain Kolbe's reaction and Reimer -Tiemann's reaction.	4	10 min.	6
7. Write a note on allyl radical as a resonance hybrid.	4	10 min.	6
8. Write a note on oxidation-reduction reactions with examples.	4	10 min.	6
9. Give an example for free radical halogenation of alkenes with respect to carbon – carbon double bond acting as substituent.	4	10 min.	6
10. Define orientation, reactivity and stability.	4	10 min.	6

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[LA 804] **APRIL 2012** **Sub. Code: 3804**

DOCTOR OF PHARMACY (PHARM. D) DEGREE EXAMINATION
FIRST YEAR

PAPER IV – PHARMACEUTICAL ORGANIC CHEMISTRY
Q.P. Code : 383804

Time : 3 hours **Maximum : 100 marks**
(180 Min)

Answer ALL questions in the same order.

I. Elaborate on :	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. (a) Elaborate the mechanism , kinetic and stereochemistry of aliphatic nucleophilic Substitution (SN^1 and SN^2) reaction.			
(b) Explain about the role of phase transfer catalysis in substitution reaction.	17	40	20
2. (a) Illustrate about the Kinetic, mechanism and isotopic effect of E1and E2 reactions.			
(b) Add a note on dehydration of acid catalysis.	17	40	20

II. Write notes on :

1. Give an account of acid and base on the basis of Lewis theories.	4	10	6
2. Preparation, test for purity, assay and uses of vanillin.	4	10	6
3. Explain the mechanism of halogenations of alkanes. Give the evidence for the same.	4	10	6
4. Outline any two methods of conversion of acids to acid chloride and amide.	4	10	6
5. Discuss the mechanism and synthetic uses of benzoin condensation reaction.	4	10	6
6. Describe the preparation methods for esters.	4	10	6
7. Outline briefly about Bayer strain theory.	4	10	6
8. Discuss the mechanism and synthetic uses of witting reaction.	4	10	6
9. Write a note on Diels alder reaction.	4	10	6
10. Preparation, test for purity, assay and uses of Aspirin.	4	10	6

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[LB 804] **OCTOBER 2012** **Sub. Code: 3804**

PHARM. D DEGREE EXAMINATION

FIRST YEAR

PAPER IV – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 383804

Time : 3 hours **Maximum : 100 marks**

(180 Min)

Answer ALL questions in the same order.

I. Elaborate on :	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. Explain the mechanism of Nucleophilic aromatic substitution reactions, orientation and reactivity of benzene.	17	40	20
2. Give the reactions of alkenes.	17	40	20
II. Write notes on :			
1. Phase transfer catalysis.	4	10	6
2. SN1 vs. $SN_{2.}$	4	10	6
3. Write the preparation of alkyl halides.	4	10	6
4. Fries rearrangement.	4	10	6
5. Give the addition reactions of conjugated dienes.	4	10	6
6. Reformatsky reaction.	4	10	6
7. Explain peroxide effect.	4	10	6
8. 4n+2 rule.	4	10	6
9. Sandmeyer reaction.	4	10	6
10. Write the preparations of Carboxylic acids.	4	10	6

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[LC 804] **APRIL 2013** **Sub. Code: 3804**

PHARM. D DEGREE EXAMS

FIRST YEAR

PAPER IV – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 383804

Time : 3 hours **Maximum : 100 marks**

I. Elaborate on : **(2x20=40)**

1. a) Define elimination reaction. Explain about its Kinetic, mechanism and isotopic effect of E1and E2 reactions.
   b) Add a note on dehydration of acid catalysis.

2. a) Write the Mechanism, reactivity, orientation of aromatic electrophilic substitution reaction with suitable examples.
   b) Explain about the resonance stabilization of benzyl radical.

II. Write notes on : **(10x6=60)**

1. Preparation, test for purity, assay and uses of methyl salicylate.
2. Explain about preparation methods of free radicals.
3. Outline briefly about Bayer strain theory.
4. Discuss the mechanism and synthetic uses of Hoffman rearrangement reaction.
5. Describe the preparation methods for amide.
6. Preparation, test for purity, assay and uses of Chlorbutol.
7. Write notes on Inter molecular forces.
8. Give the mechanism for nitration and sulphonation reaction.
9. Explain the preparation methods and synthetic uses of diazonium salts.
10. Discuss the mechanism and synthetic uses of Reformatsky reaction.

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[LD 804] **OCTOBER 2013** **Sub. Code: 3804**

PHARM. D DEGREE EXAMINATIONS

FIRST YEAR

PAPER IV – PHARMACEUTICAL ORGANIC CHEMISTRY

Q.P. Code : 383804

Time: Three Hours **Maximum: 70 marks**

Answer ALL questions in the same order

I. Elaborate on: **(2 x 20 = 40)**

1. i) Write the Electrophilic addition reactions of alkenes.
   ii) Write about basicity of amines
2. i) Explain the mechanisms involved in Elimination reactions
   ii) (a) Aldol Condensation (b) Hoffmann rearrangement

II. Write notes on: **(10 x 3 = 30)**

1. Aliphatic Nucleophilic substitution V.s. Aromatic nucleophilic substitution
2. Fries rearrangement
3. Write the preparation and medicinal uses of
   a) Vanillin b) Salicylic acid.
4. Write any three methods of preparation of carboxylic acids.
5. a) Williamsons synthesis b) Sandmeyer reaction.
6. 1, 4-addition and. 1,2-addition reactions of Dienes
7. Markownikoff's rule
8. Bayers strain theory
9. SN_1 VS. SN_2
10. Phase transfer catalysis

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