To,
Exam Controller,
AIKTC, New Panvel.

Dear Sir/Madam,
Received with thanks the following **Semester**/Periodic question papers from your exam cell:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Subject Name</th>
<th>Subject Code</th>
<th>Format</th>
<th>No. of Copies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Organic Chemistry-I</td>
<td></td>
<td>✓</td>
<td>01</td>
</tr>
<tr>
<td>2</td>
<td>Biochemistry-II</td>
<td></td>
<td>✓</td>
<td>01</td>
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<tr>
<td>3</td>
<td>Dispensing Pharmacy</td>
<td></td>
<td>✓</td>
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<td>4</td>
<td>Pharm. Engg.</td>
<td></td>
<td>✓</td>
<td>01</td>
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<tr>
<td>5</td>
<td>APP-III</td>
<td></td>
<td>✓</td>
<td>01</td>
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<tr>
<td>6</td>
<td>Pharm. Math.</td>
<td></td>
<td>✓</td>
<td>01</td>
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Note: SC – Softcopy, HC - Hardcopy

(Shaheen Ansari)
Librarian, AIKTC

Date: 06/04/2016
SEM: III
1. Define and explain Markovnikov rule and Anti-Markovnikov?
   OR
   3M

1. Write a note on Dehydrohalogenation of alkyl halides?
   2M

2. Assign D/L, R/S and E/Z notation and nomenclate following as IUPAC rules. (any 2)
   2M
   \[ \begin{align*}
   & \text{1) } \begin{array}{c}
   \text{Cl} \\
   \text{CHCl}_2 \\
   \text{CH}_3
   \end{array} \\
   & \text{2) } \begin{array}{c}
   \text{COOH} \\
   \text{OH} \\
   \text{OH}
   \end{array} \\
   & \text{3) } \begin{array}{c}
   \text{H} \\
   \text{Cl}
   \end{array} \\
   & \text{4) } \begin{array}{c}
   \text{C} \\
   \text{CH}_3
   \end{array}
   \end{align*} \]

3. Give suitable structures for the following. (any 2)
   i) 3,7-dimethyl-6-octen-1-ol
   ii) 3-oxobutanoic acid
   iii) 3,5-dimethylhexane-1,3,5-triol
   iv) 2-methyl-4-nitro-2-pentanol
   2M

4. Draw possible resonating structures of following compounds (Any 2)
   i) Benzaldehyde
   ii) Aniline
   iii) Phenol
   iv) Anisole
   2M

5. Rank the order of basicity for following organic compounds and justify OR
   2M
   \[ \begin{align*}
   & \text{(a) } \begin{array}{c}
   \text{C} \\
   \text{H}_2 \\
   \text{N}\end{array} \\
   & \text{(b) } \begin{array}{c}
   \text{C} \\
   \text{H}_2 \\
   \text{N}\end{array}
   \end{align*} \]

6. Rank the order of acidity for following organic compounds and justify
   2M
   \[ \begin{align*}
   & \text{COOH} \\
   & \text{COOH} \\
   & \text{COOH}
   \end{align*} \]

6. On the basis of configuration, Establish a relationship between following pair of molecules OR
   1M
   \[ \begin{align*}
   & \text{CH}_2 \text{CN} \\
   & \text{CH}_2 \text{OH}
   \end{align*} \]

7. Identify the tautomeric system in the following pair of molecules. 4M
   \[ \begin{align*}
   & \text{CH}_2 \text{CN} \\
   & \text{OH}
   \end{align*} \]

8. Differentiate between SN1 and SN2 OR 3M

Complete the following table

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Ideal solvent</th>
<th>Type of solvent</th>
<th>Type of substrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SN1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN2</td>
<td></td>
<td></td>
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</tbody>
</table>
Subject: Biochemistry-II
Marks: 15 M

Date: 08-09-2015
Time: 11.00 am-12.00 pm

Answer the following questions

1. Draw the structure of purines. [2M]

2. Give the name and structures of the substrate and product of the following enzyme reactions.
   (any 2) [4M]
   - GAR transformylase
   - FGAM cyclase
   - Guanine deaminase
   - B-ureidopropionase

3. Write the structure of the given substrate and product and name the enzyme catalysing the reaction. (any 2) [4M]
   - Formylglycinamide ribonucleotide (FGAR) to formylglycinamidine ribonucleotide (FGAM)
   - N-formylaminoimidazole-4-carboxamide ribonucleotide (FAICAR) to Inosinate (IMP)
   - Xanthine to uric acid
   - Thymine to dihydrothymine

4. Differentiate between prokaryotic and eukaryotic replication? [2M]

5. Mention any three drugs which inhibits the polymerase in disease state? [3M]
Q. No. 1. a) Give the following conversions
   i) $1/2$ floz =----- mins.
   ii) 4 tablespoonful=-----ml.
   iii) 1 gallon=-------ml.
   iv) 500mg =----- grains.

b) Discuss the factors affecting dose of pharmaceutical products during compounding. (2M)

c) Define: i) creams   ii) poultice (1M)

Q. No. 2. a) Answer in brief (Any ONE)
   1) State role of diffusible solids in the suspensions containing oils for inhalations.
   2) Enlist the possible causes of formation of improper primary emulsion by dry gum method.

b) Define prescription with an example. OR

b) Write a note on prescription pricing. (2M)

c) Differentiate between o/w and w/o type of emulsions. (1M)

Q. No. 3. a) Give auxiliary conditions for the following preparations (Any four)
   1) Linctus
   2) Ointment
   3) Elixir
   4) Suppositories
   5) Emulsions

b) Write a short note on (any one)
   1) Douches
   2) Mouthwash (2M)

c) What are indiffusible solids? Explain with the help of examples. (1M)
Q1. State Bernoulli’s theorem. Explain Turbulent and laminar flow. 

Q2. Draw neat labeled diagram of following (any 2) 
   a) Venturimeter  
   b) Reciprocating pumps  
   c) Tubular Heat exchanger  
   d) Bourdon guage 

Q3. Classify pumps. Write a note on Rotary pump. 

Q4. Explain conduction of heat through series of conductors. 

***BEST OF LUCK***
Q.1 Describe Cardiac cycle in detail. [3M]

OR

Q.1 Draw neat and labeled diagram of heart. Distinguish between arteries and veins. [3M]

Q.2 Explain conduction system of heart with diagram. [3M]

Q.3 Write a note on hormonal regulation of blood pressure. [3M]

Q.4 Discuss absorption and secretion in proximal convoluted tubule and distal convoluted tubule. [3M]

Q.5 Discuss pathophysiology of [3M]
  a. Renal calculi
  b. Congestive heart failure
Q:1) Attempt any three. 9 marks

1) Find inverse of \( A = \begin{bmatrix} 2 & -1 & 3 \\ 1 & 1 & 1 \\ 1 & -1 & 1 \end{bmatrix} \) by adjoint method.

2) Find the eigenvalues of
\[
A = \begin{bmatrix} 3 & -1 & 1 \\ -1 & 5 & -1 \\ 1 & -1 & 3 \end{bmatrix}
\]

3) Solve by Cramers rule
\[
x + y + z = 0, \quad 2x + 3y - z = -5, \quad x - y + z = 4.
\]

4) Evaluate
\[
\int_{1}^{5} (x^3 + 4)\,dx \quad \text{by Simpsons} \frac{1}{3} \text{rd rule}.
\]

Q:2) Attempt any two. 6 marks

1) Solve
\[
\begin{vmatrix} 1 & -6 & -x \\ 2 & -3 & x - 3 \\ -3 & 2 & x + 2 \end{vmatrix} = 0.
\]

2) Find rank of \( A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \).

3) Given

<table>
<thead>
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<th>( x )</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
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<tbody>
<tr>
<td>( F(x) )</td>
<td>8</td>
<td>34</td>
<td>44</td>
<td>64</td>
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</table>

Estimate \( f(12) \) by Newtons forward difference interpolation formula.