Medicinal Chemistry 410 Exam #1
February 19, 2010

Name: ___________________________ Med. Chem. #_________

Part I. (75 Points)
There are 50 multiple choice questions worth 1.5 points each (75 Points).
Please use the Scantron Sheet provided. If you feel there is no correct answers, leave the Scantron blank for that particular question and write NONE on your exam for that question.

1. The drug illustrated below:

<table>
<thead>
<tr>
<th></th>
<th>I is a cascading prodrug. II is used to treat hepatitis B infection III ultimately inhibits viral reverse transcriptase.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>I only</td>
</tr>
<tr>
<td>b</td>
<td>III only</td>
</tr>
<tr>
<td>c</td>
<td>I and II only</td>
</tr>
<tr>
<td>d</td>
<td>II and III only</td>
</tr>
</tbody>
</table>
| e | I, II, and III | Answer __

2. The drug illustrated below:

<table>
<thead>
<tr>
<th></th>
<th>I can be used synergistically with sulfonamide antibiotics. II selectively inhibits dihydrofolate reductase in protozoa relative to bacteria. III is used to treat malaria.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>I only</td>
</tr>
<tr>
<td>b</td>
<td>III only</td>
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<tr>
<td>c</td>
<td>I and II only</td>
</tr>
<tr>
<td>d</td>
<td>II and III only</td>
</tr>
</tbody>
</table>
| e | I, II, and III | Answer __

3. The drug illustrated below:

<table>
<thead>
<tr>
<th></th>
<th>I is very effective against anerobic bacteria. II is primarily used against Gram (-) bacteria. III binds to the 16S ribosomal portion of the 30S ribosomal subparticle.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>I only</td>
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<tr>
<td>b</td>
<td>III only</td>
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<tr>
<td>c</td>
<td>I and II only</td>
</tr>
<tr>
<td>d</td>
<td>II and III only</td>
</tr>
</tbody>
</table>
| e | I, II, and III | Answer __
4. The drug illustrated below:

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</table>

**I** is orally active.
**II** is β-lactamase resistant.
**III** inhibits bacterial cell wall synthesis by inhibiting penicillin binding protein (a transpeptidase).

a. I only  
b. III only  
c. I and II only  
d. II and III only  
e. I, II, and III

**Answer **

5. The drug illustrated below:

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</table>

**I.** inhibits squalene epoxidase.  
**II** can be used iv for systemic fungal infection.  
**III** inhibits C-14α-demethylase.

a. I only  
b. III only  
c. I and II only  
d. II and III only  
e. I, II, and III

**Answer **

6. The drug illustrated below:

<table>
<thead>
<tr>
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<tr>
<td>H₂N</td>
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<tr>
<td>SO₂N</td>
<td></td>
</tr>
<tr>
<td>H₂CO</td>
<td></td>
</tr>
<tr>
<td>OCH₃</td>
<td></td>
</tr>
</tbody>
</table>

**I** is a competitive inhibitor of the synthesis of dihydropteroic acid.  
**II** blocks the De Novo synthesis of dihydrofolate in bacteria.  
**III** has a long duration of action making it useful in the treatment of protozoal infections.

a. I only  
b. III only  
c. I and II only  
d. II and III only  
e. I, II, and III

**Answer **

7. The drug illustrated below:

<table>
<thead>
<tr>
<th>I</th>
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</tr>
</thead>
<tbody>
<tr>
<td>NH₂</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
<tr>
<td>HO₆C</td>
<td></td>
</tr>
</tbody>
</table>

**I** is classified as a nucleoside reverse transcriptase inhibitor.  
**II** does cause chain termination of developing viral DNA.  
**III** is used in combination with the 2'-deoxycytidine mimic, Lamivudine.

a. I only  
b. III only  
c. I and II only  
d. II and III only  
e. I, II, and III

**Answer **
8. The drug illustrated below:

- **I** is resistant to β-lactamase.
- **II** is administered with cliastin to prevent deactivation by renal dehydropeptidase.
- **III** is administered orally.

   a) I only
   b) III only
   c) I and II only
   d) II and III only
   e) I, II, and III

   **Answer** __________

9. The drug illustrated below:

- **I** is used together with other HIV protease inhibitors.
- **II** is known to inhibit CYP 3A4 and CYP 2D6 enzymes.
- **III** is a component of Kaletra®.

   a) I only
   b) III only
   c) I and II only
   d) II and III only
   e) I, II, and III

   **Answer** __________

10. The drug illustrated below:

- **I** degradation products found in expired lots of this drug can be highly nephrotoxic.
- **II** binds to the 23S ribosomal RNA of the 50S subunit.
- **III** is sensitive to β-lactamase.

   a) I only
   b) III only
   c) I and II only
   d) II and III only
   e) I, II, and III

   **Answer** __________

11. The drug illustrated below:

- **I** is classified as a non-nucleoside reverse transcriptase inhibitor.
- **II** is effective orally.
- **III** is used as a prophylactic to prevent malarial infection.

   a) I only
   b) III only
   c) I and II only
   d) II and III only
   e) I, II, and III

   **Answer** __________
12. The drug illustrated below:

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Chemical Structure" /></td>
<td><img src="image" alt="Chemical Structure" /></td>
<td><img src="image" alt="Chemical Structure" /></td>
</tr>
</tbody>
</table>

I binds to the 50S subunit of ribosomal RNA of bacteria disrupting protein synthesis.
II can readily undergo internal ketalization under acid conditions
III must be enteric coated for oral administration.

a I only
b III only
c I and II only
d II and III only
e I, II, and III  **Answer**

13. The drug illustrated below:

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Chemical Structure" /></td>
<td><img src="image" alt="Chemical Structure" /></td>
<td><img src="image" alt="Chemical Structure" /></td>
</tr>
</tbody>
</table>

I is a 2’deoxyadenosine mimic.
II is a prodrug.
III inhibits viral DNA polymerase.

a I only
b III only
c I and II only
d II and III only
e I, II, and III  **Answer**

14. The drug illustrated below:

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Chemical Structure" /></td>
<td><img src="image" alt="Chemical Structure" /></td>
<td><img src="image" alt="Chemical Structure" /></td>
</tr>
</tbody>
</table>

I is only effective by iv administration.
II is a carbapenem antibiotic.
III is an inhibitor of β-lactamase.

a I only
b III only
c I and II only
d II and III only
e I, II, and III  **Answer**

15. The drug illustrated below:

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Chemical Structure" /></td>
<td><img src="image" alt="Chemical Structure" /></td>
<td><img src="image" alt="Chemical Structure" /></td>
</tr>
</tbody>
</table>

I inhibits squalene epoxidase in the synthesis of ergosterol in fungi.
II cannot be not used orally, but is effective topically for Tinea infections.
III is used as a prophylactic for malarial infection.

a I only
b III only
c I and II only
d II and III only
e I, II, and III  **Answer**
16. The drug illustrated below:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>is a competitive inhibitor of reverse transcriptase competing with deoxynucleoside triphosphates for incorporation into viral DNA.</td>
</tr>
<tr>
<td>II</td>
<td>is used to treat DNA viral infections such as Herpes Simplex infection.</td>
</tr>
<tr>
<td>III</td>
<td>is susceptible to the development of resistance when used as monotherapy.</td>
</tr>
</tbody>
</table>

- a) I only
- b) III only
- c) I and II only
- d) II and III only
- e) I, II, and III  

Answer ___

17. The drug illustrated below:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>is a prodrug.</td>
</tr>
<tr>
<td>II</td>
<td>is effective orally</td>
</tr>
<tr>
<td>III</td>
<td>is β-lactamase resistant.</td>
</tr>
</tbody>
</table>

- a) I only
- b) III only
- c) I and II only
- d) II and III only
- e) I, II, and III  

Answer ___

15. The drug illustrated below:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>blocks the integration of viral genetic material into human chromosomes.</td>
</tr>
<tr>
<td>II</td>
<td>is effective orally.</td>
</tr>
<tr>
<td>III</td>
<td>is used in the prophylactic treatment for malaria.</td>
</tr>
</tbody>
</table>

- a) I only
- b) III only
- c) I and II only
- d) II and III only
- e) I, II, and III  

Answer ___

16. The drug illustrated below:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>is used to treat hepatitis B infections.</td>
</tr>
<tr>
<td>II</td>
<td>is activated to its 5’-triphosphate.</td>
</tr>
<tr>
<td>III</td>
<td>inhibits viral reverse transcriptase.</td>
</tr>
</tbody>
</table>

- a) I only
- b) III only
- c) I and II only
- d) II and III only
- e) I, II, and III  

Answer ___
17. The drug illustrated below:

I is a third generation cephalosporin
II is β-lactamase resistant.
III is effective orally.

a  I only
b  III only
c  I and II only
d  II and III only
e  I, II, and III

Answer __

18. The drug illustrated below:

I is more active than ampicillin toward Gram (-) bacteria such as *Pseudomonas aeruginosa*.
II is resistant to β-lactamase
III is a prodrug.

a  I only
b  III only
c  I and II only
d  II and III only
e  I, II, and III

Answer __

19. The drug illustrated below:

I initially blocks protein synthesis in bacteria.
II primarily kills gram (+) bacteria.
III can cause double-strand breaks in bacteria DNA.

a  I only
b  III only
c  I and II only
d  II and III only
e  I, II, and III

Answer __

20. The drug illustrated below:

I is a potent broad spectrum antibiotic that can kill gram (-) bacteria.
II is not orally effective and must be administered parenterally.
III is a β-lactamase inhibitor.

a  I only
b  III only
c  I and II only
d  II and III only
e  I, II, and III

Answer __
21. The drug illustrated below:

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lacks the cross resistance observed among several nucleoside reverse transcriptase inhibitors (NRTIs).</td>
<td>is a noncompetitive inhibitor of viral reverse transcriptase.</td>
<td>requires viral thymidine kinase for activity.</td>
</tr>
</tbody>
</table>

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __

22. The drug illustrated below:

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>is used systemically.</td>
<td>induces CYP 450 enzymes, which can lower serum levels of other drugs.</td>
<td>inhibits 14α-demethylase in the biosynthesis of ergosterol.</td>
</tr>
</tbody>
</table>

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __

23. The drug illustrated below is:

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>is metabolically transformed into an inhibitor of dihydrofolate reductase.</td>
<td>is commonly associated with hemolytic anemia</td>
<td>inhibits the uncoating of influenza A</td>
</tr>
</tbody>
</table>

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __

24. The combination drug listed below contains:

<table>
<thead>
<tr>
<th>Atripla®</th>
<th>I</th>
<th>II</th>
<th>III</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Efavirenz</td>
<td>Abacavir</td>
<td>Lamivudine</td>
</tr>
</tbody>
</table>

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __
25. The drug illustrated below:

I binds to the D-ala-D-ala terminus of peptidoglycans in bacteria, blocking access by transferases.

II inhibits bacterial cell wall synthesis.

III is highly nephrotoxic when administered orally.

a I only  
b III only  
c I and II only  
d II and III only  
e I, II, and III

Answer __

26. The drug illustrated below:

I cannot be administered orally.

II is always administered with ritonavir®.

III acts as a “transition state” enzyme inhibitor.

a I only  
b III only  
c I and II only  
d II and III only  
e I, II, and III

Answer __

27. The drug illustrated below:

I is converted to a mimic of guanosine.

II is used in combination therapy for the treatment of HIV infection.

III is used to treat hepatitis B.

a I only  
b III only  
c I and II only  
d II and III only  
e I, II, and III

Answer __
28. The drug illustrated below:

\[ \text{P} \text{O}_2 \text{Na} \text{O}_2 \text{Na} \text{O}_2 \text{Na} \]

I inhibits viral DNA polymerase.
II is administered only as a parenteral.
III can form chelates with various electrolytes.

a) I only
b) III only
c) I and II only
d) II and III only
e) I, II, and III

Answer __

29. The drug illustrated below:

\[ \text{H}_3\text{C} \text{N} \text{H}_2 \text{O} \text{N} \text{H}_3 \text{C} \text{F} \text{N} \text{I} \]

I can be administered orally or by intravenous injection.
II binds to the 23S ribosomal subunit of ribosomal RNA.
III is used to treat vancomycin-resistant MRSA infections.

a) I only
b) III only
c) I and II only
d) II and III only
e) I, II, and III

Answer __

30. The drug illustrated below:

\[ \text{F}_3\text{C} \text{N} \text{O}_2 \text{O} \text{O}_2 \text{O}_2 \text{Na} \text{CH}_3 \]

I is a HIV protease inhibitor.
II is a transition-state inhibitor.
III has multiple chiral centers.

a) I only
b) III only
c) I and II only
d) II and III only
e) I, II, and III

Answer __

31. The drug illustrated below:

\[ \text{O} \text{N} \text{H}_2 \text{N} \text{H}_3 \text{S} \text{CH}_3 \text{CH}_3 \text{COOH} \]

I is orally active.
II is not resistant to β-lactamase.
III has an extended spectrum of antibacterial activity that includes Gram (-) bacteria.

a) I only
b) III only
c) I and II only
d) II and III only
e) I, II, and III

Answer __
32. The drug illustrated below

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I is used to treat hepatitis B infections.
II can be synergistic with Zidovudine (a thymidine mimic) in the treatment of HIV infection.
III causes viral DNA chain termination.

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III

Answer __

33. The drug illustrated below:

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</tbody>
</table>

I is available as oral capsules as well as an iv formulation.
II is acid stable and need not be enteric coated for oral administration.
III inhibits CYP 3A4.

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III

Answer __

34. The drug illustrated below:

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</tbody>
</table>

I is used to treat urinary tract infections.
II is used to treat conjunctivitis.
III is used to treat Crohn’s disease.

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III

Answer __

35. The drug illustrated below:

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</tbody>
</table>

I is orally efficacious for treating fungal infections within the lumen of the GI tract, but not orally efficacious for systemic fungal infections.
II is often nephrotoxic upon prolonged parenteral administration.
III binds with cholesterol to increase the permeability of fungal cells.

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III

Answer __
36. The drug illustrated below:

<table>
<thead>
<tr>
<th>Structure</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>can be administered orally.</td>
<td>can cause severe hepatotoxicity.</td>
<td>inhibits 14α-demethylase in the biosynthesis of ergosterol.</td>
</tr>
</tbody>
</table>

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __

37. The drug illustrated below:

<table>
<thead>
<tr>
<th>Structure</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>is typically used as monotherapy for early stages of tuberculosis infection.</td>
<td>is only administered intravenously.</td>
<td>its active form is as the acid resulting from hydrolysis of the carboxamide.</td>
</tr>
</tbody>
</table>

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __

38. The drug illustrated below is:

<table>
<thead>
<tr>
<th>Structure</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>binds to 30S subunit of ribosomes and blocks protein synthesis.</td>
<td>known to induce cytochrome P450 enzymes, such as CYP450 3A4.</td>
<td>is used to treat tuberculosis.</td>
</tr>
</tbody>
</table>

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __

39. The drug illustrated below:

<table>
<thead>
<tr>
<th>Structure</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>is used in combination with nucleoside reverse transcriptase inhibitors that mimic thymidine or 2'-deoxycytosine.</td>
<td>is metabolically converted to a mimic of 2'-deoxyguanosine.</td>
<td>requires activation by viral thymidine kinase.</td>
</tr>
</tbody>
</table>

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __
40. The drug illustrated below:

\[ \text{Image of drug molecule} \]

I is a prophylactic agent used to prevent the uncoating of influenza A.
II is orally active.
III binds to the receptor that HIV uses to bind and gain entry (CCR5) to human T cells.

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __

41. The drug listed below:

| Enfuvirtide |  
|---|---|
| I | binds to gp41, a viral transmembrane protein of HIV-1, preventing cellular infection.  
II | is a 36 amino acid peptide.  
III | is administered by subcutaneous injection.  

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __

42. The drug illustrated below:

\[ \text{Image of drug molecule} \]

I has β-lactamase resistance.
II is used against Gram (-) bacteria.
III orally efficacious.

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __

43. The drug illustrated below:

\[ \text{Image of drug molecule} \]

I causes double-strand DNA strand breaks in bacteria.
II should not be taken with antacids, milk, or iron supplements.
III is associated with an increased risk of tendinitis and tendon rupture.

a) I only  
b) III only  
c) I and II only  
d) II and III only  
e) I, II, and III  

Answer __
44. The drug illustrated below:

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Chemical Structure" /></td>
<td><img src="image2.png" alt="Chemical Structure" /></td>
<td><img src="image3.png" alt="Chemical Structure" /></td>
</tr>
</tbody>
</table>

- **I** is used orally to treat hepatitis B.
- **II** is a mimic of thymidine.
- **III** is activated by conversion to its triphosphate.

**Answer:**

- a I only
- b III only
- c I and II only
- d II and III only
- e I, II, and III

45. The drug illustrated below:

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4.png" alt="Chemical Structure" /></td>
<td><img src="image5.png" alt="Chemical Structure" /></td>
<td><img src="image6.png" alt="Chemical Structure" /></td>
</tr>
</tbody>
</table>

- **I** is commonly administered by intramuscular injection.
- **II** can be administered intravenously.
- **III** can cause phototoxicity (photosensitization) as a side effect.

**Answer:**

- a I only
- b III only
- c I and II only
- d II and III only
- e I, II, and III

46. The drug illustrated below is:

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7.png" alt="Chemical Structure" /></td>
<td><img src="image8.png" alt="Chemical Structure" /></td>
<td><img src="image9.png" alt="Chemical Structure" /></td>
</tr>
</tbody>
</table>

- **I** is a fourth generation fluoroquinolone antibiotic.
- **II** is indicated for *Streptococcus pneumoniae* infection.
- **III** is only effective against Gram (-) bacteria.

**Answer:**

- a I only
- b III only
- c I and II only
- d II and III only
- e I, II, and III

47. The drug illustrated below:

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image10.png" alt="Chemical Structure" /></td>
<td><img src="image11.png" alt="Chemical Structure" /></td>
<td><img src="image12.png" alt="Chemical Structure" /></td>
</tr>
</tbody>
</table>

- **I** is formulated for intravenous administration.
- **II** binds to the 50S ribosomal subunit of bacterial ribosomes.
- **III** can produce aplastic anemia as an adverse side effect.

**Answer:**

- a I only
- b III only
- c I and II only
- d II and III only
- e I, II, and III
48. The drug illustrated below:

I is used as an antiretroviral agent.
II is effective orally.
III is a neuraminidase inhibitor.

- a I only
- b III only
- c I and II only
- d II and III only
- e I, II, and III  

Answer __

49. The drug illustrated below:

I is used to treat hepatitis B.
II could be cross allergenic in individuals allergic to sulfonamide antibiotics.
III is a prodrug.

- a I only
- b III only
- c I and II only
- d II and III only
- e I, II, and III  

Answer __

50. The drug illustrated below:

I is among the more effective cephalosporins against Gram (-) bacteria.
II is β-lactamase resistant.
III can be administered orally.

- a I only
- b III only
- c I and II only
- d II and III only
- e I, II, and III  

Answer __
**Part 2 Generic Names (9 Points).** Provide the Generic Names for the Compounds listed on the following page. In the space provided under the structure of each the compounds illustrated, write the correct CAPITALIZED letter corresponding to the choice of answers given on the following page. The letter “Z” may be used as an answer as seldom or as often as needed.

<table>
<thead>
<tr>
<th>Structure 1</th>
<th>Structure 2</th>
<th>Structure 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₂H₅OH</td>
<td>HOH₂</td>
<td>H₂N₂</td>
</tr>
<tr>
<td>Answer</td>
<td>Answer</td>
<td>Answer</td>
</tr>
<tr>
<td>F₂O₂</td>
<td>HOH₂</td>
<td>H₂N₂</td>
</tr>
<tr>
<td>Answer</td>
<td>Answer</td>
<td>Answer</td>
</tr>
<tr>
<td>CH₃CH₂NH₂</td>
<td>CH₃OH</td>
<td>H₂N₂</td>
</tr>
<tr>
<td>Answer</td>
<td>Answer</td>
<td>Answer</td>
</tr>
<tr>
<td>OH₂</td>
<td>HOH₂</td>
<td>H₂N₂</td>
</tr>
<tr>
<td>Answer</td>
<td>Answer</td>
<td>Answer</td>
</tr>
<tr>
<td>CH₃CH₂OH</td>
<td>HOH₂</td>
<td>H₂N₂</td>
</tr>
<tr>
<td>Answer</td>
<td>Answer</td>
<td>Answer</td>
</tr>
<tr>
<td>OH₂</td>
<td>HOH₂</td>
<td>H₂N₂</td>
</tr>
<tr>
<td>Answer</td>
<td>Answer</td>
<td>Answer</td>
</tr>
</tbody>
</table>
A. Ceftibuten  J. Minocycline  S. Ertapenem
B. Streptomycin  K. Famciclovir  T. Rifabutin
C. Didanosine  L. Amoxicillin  U. Naftifine
D. Zanamivir  M. Stavudine  V. Ciprofloxacin
E. Pyrimethamine  N. Itraconazole  W. Ethambutol
F. Efavirenz  O. Darunavir  X. Aztreonam
G. Erythromycin  P. Entecavir  Y. Moxifloxacin
H. Cidofovir  Q. Ribavirin  Z. None of These
I. Sulfadoxine  R. Nafillin


1) 1-Azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid, 7-[(aminophenylacetyl)amino]-3-chloro-8-oxo-

2) 5-Amino-1-cyclopropyl-7-(3,5-dimethylpiperazin-1-yl)-6,8-difluoro-4-oxo-1,4-dihydroquinoline-3-carboxylic acid, 7(3R,5S)-

3) 1,3-Propanediol, 2-[2-(2-amino-8-chloro-9H-purin-9-yl)ethyl]-
4) 3-Isoquinolinecarboxamide, decahydro-2,2-dimethyl-4-(phenylthio)butyl]-, [3R-[3α,4αβ,8αβ]]-