Due Date: Tuesday, March 13, 2018

Read the instructions for each question CAREFULLY before you begin. Please work on this exam on your own. You need the experience!

Student’s Name: ____________________________________________________________

1.) The first group of questions requires you to research a specific author. You have each been assigned the noted chemist, biochemist, chemical engineer or materials scientist from the list below.

Using the indexes, databases and catalogs that we have covered in class find one of each of the following by your faculty member. SciFinder will be your primary tool, but perhaps not the only one. When the question asks for a reference, photocopy or print out BOTH:

A. The bibliographic record for the item from the database, catalog, etc.
B. The first page of the document itself.

and attach them to your completed mid-term. Note: if your author has a common name, you may need to refine by institution to make sure you have the right person. Be aware of variant forms of the name!

Alvelais, Rachel - Guillermo C. Bazan
Blasco, Gordon - Frank L. Brown
Bone, Hannah - Steven K Buratto
Cardenas, Yesemia - Alison Butler
Clark, Evan - Irene A. Chen
Herz, Josh - Craig Hawker
Huang, Yubin - Trevor Hayton
Lee, Ju Hyun - Luc Jaeger
Pirounakis, Anthony - Baron Peters
Ruvalcaba, Adrian - Thomas R. Pettus
Jin, Xinghua - Kevin W. Plaxco
Tao, Minli - Joan-Emma Shea

Note: some of these will be more challenging than others. Be creative! Make sure you review ALL the sources covered in the lecture notes to help figure out which sources will work best for finding what you need.

Researcher chosen: ____________________________________________________________

1a. (3 pts.) When you looked up the researcher in SciFinder by Author Name, what forms of the name did you select?
1b. (4 pts.) Find a journal article by your author from 2014 or later in the electronic version of a journal. Remember to attach both the bibliographic record from the database, and the first page of the article. If there is supporting or supplementary material for the article, print out the first page of that as well. If your author has no published journal articles since 2014, use the most recent one available – I will check!

1c. (2 pts. Each) Looking at the journal article above and/or its record in SciFinder, list six different specific pieces of information from them that you could use to find more documents on similar topics and tell me what their significance is. Note: Do not just put “other authors”, give me the specific name(s) and how you’d use them. Be similarly specific for other types of information. Do not use the same type of information more than once:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

1d. (3 pts.) Find a patent (if you can't find one by your chosen researcher, any UCSB chemistry faculty member will do.) Provide both the bibliographic record and the first page of the patent.

1e. (2pts. Each) Looking at the patent above and/or its record in SciFinder, list six specific pieces of information from them that you could use to find more documents on similar topics and tell me what their significance is. Do not use the same type of information more than once:
1f. (3pts) Find your researcher’s dissertation OR a dissertation with your researcher as advisor. For the first page, use the first page with the abstract of the dissertation. (You’ll need to use ProQuest Dissertations & Theses for this part.) If you can’t find one there or in the UCSB Library Search, or the Alexandria Digital Research Library, omit the first page requirement. If you can’t find any listed, just say NONE. (But note, I will check all these…)

1g (3pts) Using SciFinder, take the results of your author search, remove duplicates, and list the three most frequent co-authors for your faculty member.

1h. (3 pts.) Similarly, what are the three most common CA Concept Headings (subject headings) applied to the faculty member's papers?

1i. (4 pts. Each) What are the three journals the researcher most commonly publishes in? Who publishes them? Are they now, or have they ever been available on the Web at UCSB? In print? (Consider both current issues and backfiles) If in print, what’s the call number? You should be able to find all this information in UCSB Library Search, either directly or via UC-e-Links.

<table>
<thead>
<tr>
<th>Journal Name</th>
<th>Publisher</th>
<th>Available Web/Print?</th>
<th>Call Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1j. (3pts.) Using SciFinder, find the papers which cite papers by your author. What author (other than the author him/herself) cites your author most frequently?

2. (2 pts. Each) Go to the Article Databases page on UCSB Library website, locate and examine the database Analytical Abstracts and answer the following (Remember to closely examine the database help pages, including “About” sections, to find this information):

2a. Scope: __________________________________________________________ (i.e., subjects and type of documents covered.)

2b. About how many document records are in the database? __________________________

2c. Years covered __________________________

2d. Access points ____________________________________________________________________ (i.e., what indexes can you search, be sure to look at the Help and Advanced Search)

2e. Truncation symbols (if any) ________________________________________________________

2f. What kind of proximity searching (if any)?_____________________________________________

2g. What kind of personalization features are there (if any)? ________________________________

3. (2 pts. each) Imagine that you are searching for information on a specific property of a particular substance in both Reaxys and SciFinder. You find Reference A in Reaxys but not in SciFinder, and Reference B in SciFinder, but not in Reaxys. Considering the criteria of scope, comprehensiveness, chronological range and access points…

3a. Give four possible specific reasons why you might have found Reference A in Reaxys but not in SciFinder (Note that Reference A might have been in SciFinder, but you couldn’t find it with a search you were able to do in Reaxys):

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

3b. Give four possible specific reasons why you might have found Reference B in SciFinder but not in Reaxys (Note that Reference B might have been in Reaxys, but you couldn’t find it with a search you were able to do in SciFinder):

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
4. (2 pts. each) Imagine that you are searching for patents on the use of a particular class of substances as analgesics. You use both SciFinder and Derwent Innovations Index to do so. You find some references that appear in your SciFinder search, but not in your Derwent Innovations Index search, and some that appear in Derwent Innovations Index search but not in your SciFinder search. Considering the criteria of **scope, comprehensiveness, chronological range and access points**…

4a. Give three possible specific reasons why a citing reference might have turned up in your search in SciFinder but **not** in Derwent Innovations Index:

4b. Give three possible specific reasons why a citing reference might have turned up in your search in Derwent Innovations Index but **not** in SciFinder:

5. Consider the thyroid hormone, **levothyroxine**:

5a. (2pts.) What is the CAS Registry number for tetraethyl lead?

5b (3 pts.) What **predicted properties** does the SciFinder Registry record list for levothyroxine (names of properties, not values)? What **experimental properties**? What **spectra**?
5c. (3 pts.) Find the earliest journal article on levothyroxine in the CAPPLUS database in SciFinder. Give the reference here. Is the paper available in electronic form? If so, attach a copy of the first page of the article. (WARNING: CAS Full Text Options/UC e-Links are not infallible! Doublecheck!)

5d. (4 pts.) Find a reaction in which tetraethyl lead is used as a reactant or reagent in a stereoselective reaction, for which experimental procedures are available. Give the full bibliographic information for the reference in which the reaction appears here, and the CAS Registry Number of the product of the reaction in question.

5e. (6 pts.) Do a similarity search on the structure of levothyroxine. Using the compounds you find with a 85-89% similarity, look for references which describe biological studies of the substance(s). Now, from those references find a patent which describes nanoparticle formulations. Give the reference (title, inventor, assignee, patent number) for the patent here, and the Registry Number(s) of the “hit” substance(s) from the patent.

5f. (6 pts.) Using levothyroxine as the starting structure, do a Markush “only as specified” search to find patents. Analyze your answer set to find those with the CA Concept Heading Thyroid hormones. Find one of these patents dealing with mass spectrometry and give the reference (title, inventor, assignee, patent number) for the patent here.

5g. (3 pts.) Searching for levothyroxine (if you don’t find it by name, try other ways to search it) in Reaxys, From the Reaxys record, find an article which contains bioactivity/ecotoxicological data on levothyroxine. Give the reference here.
6. (6 pts.) Consider the chemical structure below, (heme, with iron replaced by ruthenium)

6a. Using SciFinder, draw the following structure) (Note: Think creatively about the easiest ways to draw this structure!):

![Chemical Structure Image]

Do a substructure search on this structure. Get the references for the resulting set of compounds, and find a patent describing the use of one of them in fibrosis in muscle cells. Print out the full reference for the paper, including the structure diagram for the “hit” compound, and attach it to your exam.

6b. (3 pts>0 In Reaxys, look up the compounds with chemical name “heme”. From that answer set, refine to the answers for which NMR spectra data is available. Pick one of the correct substances, and print the record for the substance and attach it to the exam.
7. (4 pts.) Many arguments have been advanced in favor of publishing scholarly research in **open access journals**. Let’s say you are the principal investigator on a project, and the paper you have written is likely to be accepted anywhere you would submit it. Would you submit it for publication in (a) a fully open-access journal? (b) a journal with “author choice” open access (that is, your article would be open access, but not every article in the issue is, necessarily)?, c) a conventional subscription journal? Explain your choice, giving the one argument that you find most compelling.