Candidate: _____________________________________________

Date of Examination: __________________

The qualifying examination committee of the student named above reviewed the written proposal and conducted an oral examination of the student to determine whether the student demonstrated a breadth of knowledge in the field of Cancer Biology, and a depth of knowledge in the chosen area of specialization in which the student plans to pursue Ph.D. thesis research. The performance of the student was:

Satisfactory _________

Unsatisfactory _________

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Comments of the Qualifying Examination Committee:
Background and Format of the Qualifying Examination

The exam consists of an NIH-style written grant proposal not to exceed ten pages (excluding references) and an oral examination. The examining committee includes three faculty members from the Cancer Biology Program but does not include the student’s thesis advisor. The composition of this committee is chosen by the student and thesis advisor and must be submitted to and approved by the Program Director prior to the end of autumn quarter, second year. One non-Cancer Biology faculty member may be substituted, if necessary, to provide specific scientific expertise relevant to the student’s proposal. The written and oral proposal should represent the student’s own efforts to identify a question of interest and to develop appropriate experimental approaches. Preliminary data generated by the student are NOT required. Students are strongly encouraged to develop a written Specific Aims section by the end of winter quarter, second year. The qualifying exam must be taken by April 1st, second year. If necessary, one retake will be permitted prior to the end of summer quarter, second year.

Mechanics of the Qualifying Examination

Each student is responsible for scheduling his/her own examination to conform to the above deadlines. The written proposal shall be given to the qualifying examination committee members at least two weeks prior to the oral exam date. Just prior to beginning the oral exam, the student's advisor is expected to meet with the examination committee for a brief closed-door session without the student present. A copy of the student's Stanford University transcript and laboratory rotation evaluations will be made available to the examination committee, as well. The student's advisor will not be present during the remainder of the examination.

Once the advisor leaves the room, the qualifying examination committee shall designate a Chair. He/she will formally be in charge of the proceedings, will decide when the exam is over, and will take a vote of the qualifying examination committee in the student's absence. The student will then be invited into the room to begin his/her presentation. Generally students prepare a 20 minute oral presentation that briefly reviews the background, but largely focuses on the Specific Aims and the proposed experiments. Quite often this presentation is interrupted by questions from the examination committee. The goal of the examination is not necessarily to finish the prepared presentation, but rather to assess the student's readiness to pursue his/her dissertation work in the laboratory. When the Chair determines that the examination is completed (generally after about 90 to 120 minutes), the student is asked to leave the room and the committee deliberates in private about the student's performance.

A student’s performance will be deemed satisfactory or unsatisfactory by a simple majority vote of the qualifying examination committee. The student will be assessed on his/her written proposal, oral presentation, mastery of the specific field of research including background literature and experimental techniques, and general knowledge about the broader field of cancer biology. The decision of the examination committee is conveyed orally to the student immediately following the exam. In addition, the Chair is responsible for summarizing the strengths and weaknesses of the written proposal and oral presentation on the examination form. The original examination form shall be given to the Program Administrator and then kept in the student’s file in the Cancer Biology Program Office. Copies of the completed examination form shall be given to the student and the student’s advisor by the Program Administrator. If the qualifying examination committee deems the student’s performance unsatisfactory, the committee can request a revision or retake of the written proposal, the oral examination, or both.
Here are some questions asked by students about the examination process:

Is the qualifying exam committee the same as the thesis committee?

Not necessarily. The qualifying exam committee is composed of three faculty members from Cancer Biology, excluding your advisor (see above). Often the thesis committee (doctoral dissertation reading committee) might include these same individuals plus your advisor. However, you and your advisor are free to reconstitute a different thesis committee after completion of the qualifying exam. Sometimes students want to add individuals from outside the program or even from other institutions to their thesis committee. Often your thesis committee members serve as references for future positions and fellowship applications, so one should give this some careful thought.

How do I choose the topic of my proposal?

This is a major part of the exercise. The most common critiques of grant proposals at all levels are "overly ambitious" and "too narrowly focused". The real trick is to find the middle ground on this spectrum. Students are encouraged to read a brief article by our own Mark Davis about asking good questions. Another valuable resource is a short book by Peter Medawar entitled "Advice to a Young Scientist." Specific advice about writing grants can be found at Science Magazine’s Nextwave website: [http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/1999_09_24/noDOI.1136734103771543891]. In particular, take a look at the article about writing a "research plan."

What is the format of the single exam?

WRITTEN

The goal is to have the student defend the work that he/she proposes for a thesis project. This includes background as well as experimental design and expected results and conclusions. The written part of the exam should be no longer than 10 pages (excluding references) and should be written in the format of an NIH grant proposal. The NIH web page has a standard set of instructions (Form 398) available on the web at: [http://grants.nih.gov/grants/funding/phs398/phs398.pdf].

Your written proposal should include only the "Research Plan" section, the highlights of which are excerpted below from an older version of PHS 398 (now in Part I, Section 5 of the linked document):

8. Research Plan

There is no Form Page for the Research Plan. The Research Plan should include sufficient information needed for evaluation of the project, independent of any other document. Be specific and informative, and avoid redundancies. Organize Items a-d of the Research Plan to answer these questions: What do you intend to do? Why is the work important? What has already been done? How are you going to do the work?

...
Research Plan Format and Page Distribution

The PHS recommends the following format and page distribution.

a. Specific Aims

List the broad, long-term objectives and what the specific research proposed in this application is intended to accomplish, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, or develop new technology. One page is recommended.

b. Background and Significance

Briefly sketch the background leading to the present application, critically evaluate existing knowledge, and specifically identify the gaps that the project is intended to fill. State concisely the importance and health relevance of the research described in this application by relating the specific aims to the broad, long-term objectives. Two to three pages are recommended.

c. Preliminary Studies/Progress Report

Preliminary Studies. For new applications, use this section to provide an account of the principal investigator/program director’s preliminary studies pertinent to the application information that will also help to establish the experience and competence of the investigator to pursue the proposed project.

Peer review committees generally view preliminary data as an essential part of a research grant application. Preliminary data often aid the reviewers in assessing the likelihood of the success of the proposed project.

... Provide a succinct account of published and unpublished results, indicating progress toward their achievement.

List the titles and complete references to all publications, manuscripts accepted for publication, patents, and other printed materials that have resulted from the project since it was last reviewed competitively. Up to 10 such publications may be included in the five collated sets of appendices.

... Six to eight pages are recommended for the narrative portion of the Preliminary Studies/Progress Report.

d. Research Design and Methods

Describe the research design and the procedures to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted as well as the data sharing plan as appropriate. Describe any new methodology and its advantage over existing methodologies. Discuss the potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims. As part of this section, provide a tentative sequence
or timetable for the project. Point out any procedures, situations, or materials that may be hazardous to personnel and the precautions to be exercised.

Although no specific number of pages is recommended for the Research Design and Methods section, the total for Items a-d may not exceed 25 pages, including all tables and figures. Applicants are encouraged to be as succinct as possible and reminded that there is no requirement that all 25 pages allotted for this section be used.

Note that your qualifying examination proposal will have a 10-page limit, rather than a 25-page limit. I would suggest sticking to a 1-page limit for Specific Aims and 2-3 page limit for Background. I would also limit the Preliminary Studies section (if any-- note that preliminary data are NOT necessary for your proposal) to 2 pages at most. This will leave the rest of the 10 pages for "Research Design and Methods." It can be very helpful to the reviewer (examiner) to organize the Preliminary Studies and Research Design and Methods sections according to your numbered Specific Aims. It might be helpful to ask your PI to see a real grant application, but it would be a pointless exercise (and would constitute plagiarism) for you to simply copy chunks of his/her grant application into your own exam proposal. Figures within your proposal can be helpful to the reviewer, but should generally not be too complex. Figures can be put at the end, but they are often more effective if inserted directly into the text at the appropriate places. The Figures are included in the page limit. Part of the exercise is learning how to present your data and plans concisely.

ORAL

The general format is for the student to plan a ~20 minute presentation for an exam that generally will last from 90-120 minutes. The examiners should be given the written portion of the exam at least two weeks before the oral exam. Students are permitted to practice their oral presentations; often this is done at a lab meeting or with a group of fellow students. However, during the actual examination the student will often not complete his/her planned oral presentation before the questions begin. The flow of the exam is up to the committee, not the student. One member of the committee will be designated as Chair. He/she will formally be in charge of the proceedings, will decide when the exam is over, and will take a vote of the qualifying exam committee in the student's absence. This Chair will be responsible for conveying the results of the exam to the student orally and to the Administrator of the Program on a standard written form.