

Casualty Actuarial Society

**Report of the Task Force
on the Review of Education and
Examination Process and Procedures**

**Final Report
November 10, 1999**

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Executive Summary

The CAS Board appointed the Task Force on the Review of Education and Examination Process and Procedures (“Task Force”) to ensure a high quality *Syllabus* and examinations.

The Task Force recognizes the incredible amount of volunteer effort given by CAS Fellows to develop, implement, and maintain the CAS education and examination system. Any actions taken must consider the impact on CAS volunteers, the CAS’s most valuable asset, who have substantial employment responsibilities. The current system is rightly recognized as setting a high standard of professional qualification for the property and casualty actuarial field.

The Task Force reviewed the current system to assess its strengths and weaknesses and to make recommendations that would help improve the process and, ultimately, the education and skills of CAS members. Various revisions of this report have been shared with the Admissions Committees, particularly with the Syllabus and Examination Committees. These committees have provided substantial input to this process. While there is general agreement on the report, there are still disagreements with some of the recommendations. None of the actions that the Board adopts will be really effective without the commitment of these committees. Many of the issues and recommendations are not new but the Task Force has decided to emphasize their continued importance. After considering input from students, members, educators, and the Admissions Committees, the Task Force makes the following recommendations:

Syllabus Issues

- The Syllabus Committee should develop a measure of the volume of syllabus material and monitor the volume over time.
- The Syllabus Committee goals should include identification and prioritization of subjects/readings that could be substantially improved by the substitution of study notes. The *Syllabus Committee Procedures Manual* should be changed to reflect the importance of this additional function.
- The Syllabus Committee should recruit additional resources (either as Part Specialists or as members of a Subcommittee) to:
 - Oversee the development and update of study notes as identified by the Syllabus Committee.
 - Contract commissioned study note authors.
 - Obtain feedback on the study notes from students and educators.
- The Board should establish funding for commissioned study notes to be used as necessary by the Syllabus Committee.
- The Syllabus Committee should establish the position of syllabus consultant. The number of people in this position will be determined by need.
 - The Syllabus Committee should consider the use of Fellows, consultants, and other non-actuarial subject matter experts to provide input on new and existing readings, particularly for subjects with experts outside the actuarial profession.
 - Before a reading is added to the *Syllabus*, the consultant(s) should provide input before the Part Specialists make a recommendation about the reading.
 - The Board should establish funding for syllabus consultants to be used as necessary by the Syllabus Committee.
- The Syllabus Committee should publish the objectives by examination part/subject in the *Syllabus* and the *Syllabus Committee Procedures Manual*.

Executive Summary (continued)

Examination Issues

- The Examination Committee should continue to emphasize questions that test concepts and understanding by using “thinking” questions rather than questions that merely require rote memorization.
- The Examination Committee should continue to develop a library of good questions.
- The Examination Committee should increase the training of committee members, especially new members, in the art of writing appropriate questions for CAS examinations.
- The Examination Committee should solicit input from subject matter experts and educators in developing “thinking” questions.
- The CAS should investigate ways to integrate communication skills into the admissions and continuing education processes.
- It should not be necessary to test each reading on every examination as long as a large proportion of the material is tested, and over the course of a few years all material is tested at least once.
- The Examination Committee should develop an objective measure of examination length.
- The Examination Committee should continue efforts to ensure the consistent length and difficulty of each examination.
- The CAS should continue the practice of publishing all examinations and answers to help students prepare for future examinations.
- The Examination Committee should better document the process for selecting passing grades in the *CAS Examination Committee Procedures Manual*.
- While the Task Force had no specific suggestion, the Examination Committee should examine alternative approaches to assigning point grades.
- The Examination Committee should continue to use its current policies and procedures for appeals.
- A formal orientation procedure for new committee members should be developed to assure that the new participants’ roles and expectations are understood.
- Consultants should continue to provide technical expertise as well as comments on examination length, overall structure, question structure, and blueprint coverage.
- The Examination Committee should consider the use of personal computers on examinations at some point in the future in conjunction with their ongoing discussion of calculators.

Joint Syllabus and Examination Issues

- The Syllabus Committee should enlist the assistance of a professional educational consultant(s) in the preparation of blueprints.
- The Syllabus and Examination Committees should continue to discuss the learning objectives and the blueprints for each examination.
- The *CAS Examination Committee* and *Syllabus Committee Procedures Manuals* should indicate that the Examination Committee should discuss with the Syllabus Committee whether no-longer-relevant material should be tested.
- The Syllabus and Examination Committees should continue to meet on a regular basis to discuss common issues and to explore additional ways of enhancing communication between the two committees.
- Input on readings and examinations should be solicited regularly from actuarial educators and teachers of examination seminars.

Executive Summary (continued)

Student Liaison Committee

- The Student Liaison Committee should continue to foster communication between the students and the Syllabus and Examination Committees.
- The Student Liaison Committee, working with the Examination Committee, should continue to periodically publish articles describing the examination and grading process to students to help demystify it.

Staff Actuary

- The CAS should hire a staff actuary to provide additional support for committee work, particularly for the Examination Committee.

Miscellaneous

- In 2000, the CAS Board should begin to study the issue of specialty examinations.
- The CAS Board should consider the issue of developing a “para-actuarial” designation.

Finally, the Task Force believes it is a good idea to conduct a review of the education and examination processes and procedures periodically, as needed, perhaps every ten years.

Introduction and Charge

While there have been and will always be criticisms of the CAS examination process, the CAS Board is particularly sensitive now because of student criticisms of the new examination structure in addition to the ongoing examination process. In response, the CAS Board appointed the Task Force on the Review of Education and Examination Process and Procedures.

Working closely and cooperatively with the Syllabus and Examination Committees, the Task Force's charge was to review the current processes and procedures used by the CAS Syllabus and Examination Committees and recommend any changes to ensure that:

1. The *Syllabus* contains high quality, relevant and understandable readings;
2. The examinations are high quality, credible, relevant and fair.

Such review was to also include, but not be limited to, reviewing processes for:

1. Removing outdated or irrelevant material;
2. Obtaining up-to-date, readable study notes;
3. Training new Examination Committee members on how to write examination questions;
4. Determining when to hire professionals to assist in writing examination questions;
5. Selecting questions for the examinations;
6. Determining appropriate pass marks;
7. Choosing sample answers from students' responses rather than model answers used by graders; and
8. Considering appeals by students.

Members of the Task Force and Approach

Members of the Task Force were: John J. Kollar, Chairperson, Robert M. Beuerlein, Robert L. Brown, Richard W. Gorvett, Gustave A. Krause, Howard C. Mahler, Donna S. Munt, William F. Murphy, and Gail M. Ross

Task Force members included:

- CAS members that had been or are currently involved with various Admission Committees over the years;
- CAS and CIA members in academia; and
- SOA members involved in education and examination roles.

The Task Force met (in person or via teleconference) 8 times between December, 1998 and September, 1999. The activities of the Task Force included:

- Requesting feedback from students and members and educators;
- Interacting with various CAS Admissions Committees and other actuarial and professional organizations;
- Performing surveys of actuaries at three large actuarial employers;
- Reviewing procedure manuals for the CAS Syllabus and Examination Committees and the SOA education and examination committees; and
- Reviewing testing procedures of several other professions.

Liaisons

The following Task Force members acted as liaisons to the following committees/organizations:

Robert Beuerlein	Society of Actuaries
Robert Brown	Canadian Institute of Actuaries
Richard Gorvett	Educators
Gus Krause	Other Professional Organizations
Donna Munt	CAS Student Liaison Committee, Education Policy Committee
William Murphy	CAS Examination Committee
Gail Ross	CAS Syllabus Committee

Feedback Requests

The Task Force posted a notice on the CAS Web Site requesting feedback from students and members. Requests for input were sent to the CAS e-mail list and were published in *The Actuarial Review*, *Notice of Examinations*, and *Future Fellows*. Comments (including many others posted earlier on the CAS Web Site) were processed by the CAS Office and distributed to the Task Force on a regular basis.

The Student Liaison Committee was asked to provide input based on its ongoing interaction with students. In addition, feedback from the CAS, Society of Actuaries, and Canadian Institute of Actuaries education committees was solicited on an ongoing basis.

A letter requesting feedback was sent to a list of academic contacts and to those who teach review courses/seminars for CAS examinations.

The feedback process helped to identify the major concerns that should be addressed by the Task Force.

Members of the Task Force and Approach (continued)

Procedures

The Task Force reviewed the procedure manuals for both the CAS Syllabus and Examination Committees to evaluate the appropriateness of the education and examination process and procedures. The following conclusions were drawn with respect to strengths and weaknesses:

Syllabus Committee Procedures

Strengths:

1. Periodic in-depth reviews are a good idea and seem well organized and thought out. Periodically focusing extra resources on each part helps to ensure that material is relevant and up to date.
2. The material on the *Syllabus* remains relatively stable over time. Infrequent, major changes are made only when a topic becomes out of date (e.g., numerical analysis) or when a new topic is considered to be of great importance (e.g., DFA).
3. The structure of the Syllabus Committee facilitates the use of members' expertise. The use of a group of Part Specialists lead by a Senior Part Specialist in making recommendations results in a distribution of labor to those best equipped in the subject area. Voting procedures ensure that the whole committee is involved in decisions on recommendations.
4. Blueprints are a useful tool for facilitating communication between the Examination and Syllabus Committees regarding education objectives and their relative importance.

Weaknesses:

1. There is not a group dedicated to developing study notes. No procedure is in place for revising appropriate *Proceedings* or *Forum* papers into Study Notes when necessary.
2. Procedures do not include enough emphasis on removing material, particularly when adding material. This has led to "syllabus creep".
3. While the form for adding an item includes a space for estimated study time, there are no guidelines or procedures as to how that should be determined. The Committee procedures do not require that the study times for all readings on a part be totaled and compared between parts and over time.
4. There is not enough feedback and communication with educators.

Examination Committee Procedures

Strengths:

1. The structure is generally designed to promote continuity and training of replacements.
2. The structures and procedures allow a tremendous amount of work to be done on strict timetables. It is very difficult to coordinate the efforts of so many volunteers.
3. Procedures are in place to recruit the large number of new members needed each year.
4. Examination consultants generally improve the quality of examinations a great deal.
5. The CAS Office does a tremendous amount of work that was formerly done by Committee members. This has probably gone about as far as it can go without the addition of an Education Actuary.
6. Procedures on grading are well thought out and structured to minimize the chance of errors or unfairness.
7. Passing grades are chosen with the input of many people, so on occasion the Part Committee may be overruled. (Some people may regard this as a weakness). The procedures provide a large set of historical statistics to examine.
8. Past examinations with solutions are provided to students. Students can send their own copy of the examination back to themselves.

Weaknesses:

1. There needs to be more consistency over time in the length and difficulty of examinations.
2. Examination consultants may benefit from more support and guidance in doing their jobs.

Members of the Task Force and Approach (continued)

Procedures (continued)

Examination Committee Procedures (continued)

Weaknesses: (continued)

3. There is not enough feedback and communication with students and/or teachers. Many students perceive that the procedure for choosing a passing mark is a black box secret. The incredible speculation on this subject does the CAS no good.
4. The manual states that in developing an examination, a question cannot have two correct answers, and should be clarified. This refers more specifically to multiple-choice questions; there can be more than one correct answer for other questions.

Areas Addressed

Through our research activities and discussions, the Task Force members identified a number of issues that we felt needed to be addressed (and were within our charge). We categorized the issues into four major areas:

- Syllabus Issues
 - “Syllabus Creep”
 - Study Notes (Quality of Readings)
 - New Readings/Syllabus Consultants
 - Publication of Objectives

- Examination Issues
 - Examination Questions, Coverage of Material and Examination Length
 - Consistency in Length/Difficulty of Examinations
 - 2000 Examination Length
 - Publication of Examinations and Answers
 - Pass Scores
 - Numerical Grades
 - Appeals
 - Examination Committee Membership
 - Examinations on PCs/Examinations on Demand
 - Jointly Administered Exams
 - CAS Examination Grading Sessions
 - Examination Committee Volunteers

- Joint Syllabus and Examination Issues
 - Examination Blueprints
 - Communication between the Syllabus Committee and the Examination Committee
 - Feedback from Seminar Teachers/Actuarial Educators

- Other Issues
 - Student Liaison Committee
 - Staff Actuary
 - Specialty Examinations
 - Miscellaneous

Discussion of the issues addressed within these four categories, as well as the Task Force’s recommendations, are included in the next section.

Syllabus Issues—Discussions and Recommendations

“Syllabus Creep”

There has been an increase over time in the volume of material on the *Syllabus* and on individual examinations. It was noted that the Syllabus Committee is not the only group to add topics. The CAS Board or the Executive Council may mandate the *Syllabus* cover certain topics or information. The expansion of readings increases the study burden on students. The Examination Committee tries to test as much of the material as possible, sometimes resulting in examinations that are too long for prepared students to complete. Or no questions may be asked on some readings, thereby frustrating some students.

A number of possible ways for reducing “syllabus creep” were discussed including dropping a topic from the *Syllabus* before adding a new one. While the Syllabus Committee tries to drop topics, this is not always possible as the body of knowledge is constantly increasing and the Syllabus Committee is often directed to add certain topics by the Board or the Executive Council.

The Task Force also discussed the concept of specifying “secondary” readings which would be tested less frequently, and “introductory/background” readings, which would not be tested at all. The Task Force rejected these approaches as a solution to “syllabus creep” because students would not be likely to study this material. And if a reading is not that important, why have it on the *Syllabus* at all?

The Syllabus Committee currently does not have an effective procedure to assess the relative amounts of material for each part and over time. Weighted page counts (to reflect differences in difficulty of material) is an example of such a measure. The existence of a measure of material would provide a way to determine the impact of syllabus changes. The existing amount of material could be established as a maximum or a smaller amount of material could be established as a target.

Recommendation:

- **The Syllabus Committee should develop a measure of the volume of syllabus material and monitor the volume over time.**

Study Notes

Some syllabus readings are not completely appropriate for actuarial education purposes or contain extraneous material that increases study time. These readings should be identified and replaced by study notes. The creation of study notes for selected topics can reduce the volume of syllabus material by enhancing the quality and focus of the study material. While some noted the value of a student being able to identify the key points in a reading developed for non-syllabus purposes, in some cases the volume of study material and lack of focus argues for more concise and directed material. Recently, the Syllabus Committee has successfully placed a renewed emphasis on study notes where published material is lacking. Highlighting this need for more focused materials would help the Syllabus Committee focus resources on developing study notes where the current published material does not serve the educational objectives adequately. If current members of the Syllabus Committee are overburdened, one to two additional Part Specialists could be recruited for each part, or a Study Note Subcommittee could be formed. In this manner, additional resources would be available to focus efforts on development of study notes, where necessary, as well as perform normal part reviews. The Syllabus Committee prefers adding Part Specialists because they are the subject matter experts. Others feel a Subcommittee/Committee is preferable because they feel the effort may be more focused. Regardless of how it is achieved, the additional resources would identify and prioritize material needing replacement, work with authors, provide editorial assistance, and make certain that Syllabus Committee objectives are met.

Another way of creating study notes is to provide financial incentives to educators and others to develop them. This makes particular sense for study notes on non-actuarial subjects.

Syllabus Issues—Discussions and Recommendations (continued)

Study Notes (continued)

The CAS Research Policy and Management Committee is considering doing a survey to identify CAS members' research strengths and interests in order to respond quickly to external research requests. The survey results may help identify subject matter experts who can develop study notes and review and recommend papers to the Syllabus Committee.

In some cases, the quality of copies makes study material difficult to read. The CAS office staff will annually review the print quality of the Study Kits.

Making a large number of changes from one *Syllabus* edition to the next puts a tremendous burden on candidates studying for the examination. Bearing in mind the importance of keeping syllabus material fresh and relevant, the Task Force endorses the Syllabus Committee's efforts to balance and introduce changes gradually.

Recommendations:

- **The Syllabus Committee goals should include identification and prioritization of subjects/readings that could be substantially improved by the substitution of study notes. The *Syllabus Committee Procedures Manual* should be changed to reflect the importance of this additional function.**
- **The Syllabus Committee should recruit additional resources (either as Part Specialists or as members of a Subcommittee) to:**
 - **Oversee the development and update of study notes as identified by the Syllabus Committee.**
 - **Contract commissioned study note authors.**
 - **Obtain feedback on the study notes from students and educators.**
- **The Board should establish funding for commissioned study notes to be used as necessary by the Syllabus Committee.**

New Readings/Syllabus Consultants

It may be helpful to have consultants to the Syllabus Committee that would function like those of the Examination Committee. The consultants would review the final syllabus proposal and provide input as appropriate. The consultants could be subject matter experts who would recommend readings from their area of expertise. Members of the CAS Committee On Review of Papers or research committees could be good sources of consultants. In addition, the Syllabus Committee should obtain independent reviews from non-actuarial subject matter experts as needed.

It may be difficult to recruit an objective consultant for certain topics, e.g., ratemaking. For such topics it may be desirable to have multiple consultants or none at all.

Recommendations:

- **The Syllabus Committee should establish the position of syllabus consultant. The number of people in this position should be determined by need.**
 - **The Syllabus Committee should consider the use of new Fellows, consultants, and other non-actuarial subject matter experts to provide input on new and existing readings, particularly for subjects with experts outside the actuarial profession.**
 - **Before a reading is added to the *Syllabus*, the consultant(s) should provide input before the Part Specialists make a recommendation about the reading.**
 - **The Board should establish funding for syllabus consultants to be used as necessary by the Syllabus Committee.**

Syllabus Issues—Discussions and Recommendations (continued)

Publication of Objectives

The Syllabus Committee has established objectives by subject although they currently are unpublished. The Examination Committee and candidates may find it useful to have these objectives published by subject on each exam, at a minimum, in the *Syllabus*. In addition, for Syllabus Committee use, the objectives should be published in the *Syllabus Committee Procedures Manual*. In addition, it may be necessary to publish a disclaimer that not all objectives are met by the readings and not all objectives will be tested.

The publication of objectives would help the Syllabus Committee to choose more focused readings (or commission study notes), the Examination Committee to select more relevant questions, and the students to have a better understanding of the purpose of the examination. Other actuarial organizations that publish their educational objectives include the Society of Actuaries, the British Institute of Actuaries/Faculty of Actuaries, and the Australian Institute of Actuaries.

Recommendation:

- **The Syllabus Committee should publish the objectives by examination part/subject in the *Syllabus* and the *Syllabus Committee Procedures Manual*.**

Examination Issues—Discussions and Recommendations

Examination Questions, Coverage of Material and Examination Length

The most frequent student feedback comment regarding examinations was that there is too much rote memorization required and that there should be more of a focus on “thinking questions” on examinations. (See Appendix A for a summary of feedback.) Such questions would probably require more time to answer. The Examination Committee should continue to train new Committee members to write good questions. A library of good questions, which the Examination Committee should continue to develop, would be helpful in this training. Individuals working in a particular field, whether on the Examination Committee or not, could be asked to write two or three such questions during the year, subject to the Committee’s confidentiality guidelines. At some time in the future, the CAS may have to consider paying a stipend to academic consultants to create some questions. Obscure details should not be tested.

Questions could be drawn from work situations; others could be developed to synthesize reading material into a real life application. “Thinking questions” are not intended to be merely formula manipulations nor trick questions, but to demonstrate an understanding of the material. The idea is to construct a problem that is not in the text, but has a reasonably “correct” answer.

Communication skills are important tools for actuaries. The Task Force discussed how communication skills could be further integrated into the CAS education and examination process. Clarity of expression could be tested with “creative” questions such as “You have been asked to analyze this issue and/or explain your recommendations to...” The anticipated type of response should be clearly communicated to the candidates, i.e., that a well presented answer will gain the maximum number of points. It is recognized that candidates are under pressure and time constraints when responding to examination questions, so effective bullet point lists, for example, should not be discouraged in favor of prose. Perhaps communication skills could be integrated into some of the various continuing education seminars.

While a reading may continue to be relevant, certain portions may become out of date. Even though such material has not been removed from the *Syllabus*, examinations should not test material that is no longer relevant. When significant sections of a reading are outdated or no longer relevant, the Examination and Syllabus Committees should discuss why the material is still on the *Syllabus* and whether or not it should be tested. The *Examination Committee* and *Syllabus Committee Procedures Manuals* should be revised to clarify this intent.

In discussing feedback, a number of questions were raised including:

- Can each reading sustain a different question every year?
- Should there be a question on each syllabus reading or is it sufficient that each topic be tested?
- Should an examination test concepts rather than specific readings?

To determine how students and CAS members feel about examination length and the issue of testing every reading on every examination, surveys were made at three large actuarial employers. (The responses are summarized in Appendix B.) Half of the students and members responding would not mind if all of the readings were not tested at each examination sitting. The Task Force believes that students should understand that examinations test a representative sample of the possible material. Students should be reminded of this frequently. At a recent joint meeting of the Syllabus and Examination Committees this issue was discussed and agreed upon by both committees.

Examination Issues—Discussions and Recommendations **(continued)**

Examination Questions, Coverage of Material and Examination Length (continued)

The Task Force considered approaches to the issue of testing of every reading. If there are four readings on a topic, an option may be to present four questions on the examination and ask students to answer three of them. The notice to students should state that the *Syllabus* reading list is for educational purposes; the examination will test the candidate's knowledge but not necessarily every reading. Allowing some readings not to be tested could lead to better questions overall because the Part Chair could use only the best questions developed over time on hard-to-test readings. One option may be to use a method that will be employed by the SoA for some 2000 examinations—send out case studies prior to the examination so that students will be familiar with the data, then ask questions about the case studies.

Recommendations:

- **The Examination Committee should continue to emphasize questions that test concepts and understanding by using “thinking” questions rather than questions that merely require rote memorization.**
- **The Examination Committee should continue to develop a library of good questions.**
- **The Examination Committee should increase the training of committee members, especially new members, in the art of writing appropriate questions for CAS examinations.**
- **The Examination Committee should solicit the input from subject matter experts and educators in developing “ thinking” questions.**
- **The CAS should investigate ways to integrate communication skills into the admissions and continuing education processes.**
- **The CAS Examination Committee and Syllabus Committee Procedures Manuals should indicate that the Examination Committee should discuss with the Syllabus Committee whether no-longer-relevant material should be tested.**
- **It should not be necessary to test each reading on every examination as long as a large proportion of the material is tested, and over the course of a few years all material is tested at least once.**

Consistency in Length/Difficulty of Exams

Occasionally, examinations have been recognized as atypically long. Student survey scores that approach or exceed 4.5 [out of 5.0] on length should be viewed with concern. If student scores for length were consistently high for all examinations, they would be easy to dismiss, but they are not. Scores of 3.0 to 3.5 are plentiful for certain examinations. By not allowing enough time for a large majority of the students to complete all questions we are impairing our ability to differentiate between the candidates.

In determining the length of an examination, consideration should be given to the amount of material included on the examination and a reasonable time for a prepared student to complete it. Personal stamina should not be an issue.

The Examination Consultant or Assistant Part Chair should compare the proposed examination with prior versions of that examination to determine consistency in length and difficulty. The reviewer could complete the examination and determine the time needed to do so. Another way to make the comparison would be to read and think about each question, formulate a tentative answer, and review the answer key. Each question could be categorized as quick, intermediate, or long. At the end, the reviewer would have a good idea of which examination is longer, and by about how much. This may be more accurate than trying to determine the examination length, “from the ground up,” by having a consultant take the test under simulated test conditions. It would likely be more reliable than the “gut feel” of Part Chair, Vice Chair, and Chair.

Examination Issues—Discussions and Recommendations **(continued)**

Consistency in Length/Difficulty of Exams (continued)

Another approach would be to have the previous Part Chairs review the first examination after he/she has left that position. Part Chairs already have too many responsibilities to be given this additional task.

Academic consultants have experience and skill in drafting examination questions for their students—a part of their professional responsibilities. These consultants, who generally receive stipends for their services, could contribute to better CAS examinations.

Another approach is being used by the Examination Committee for the development of the new joint examinations beginning in the year 2000. Each committee member submits several questions. The questions are then sent to all members to solve and evaluate for difficulty, length, and relative quality.

Recommendations:

- **The Examination Committee should develop an objective measure of examination length.**
- **The Examination Committee should continue efforts to ensure the consistent length and difficulty of each examination.**

2000 Examination Length

The issue of the length (number of hours) of the examinations for the Year 2000 was mentioned as a possible topic that the Task Force should consider. As a task force representing the Syllabus and Examination Committees met and made recommendations on the length of examinations for 2000, no additional action was required from our Task Force in this area.

Publication of Examinations and Answers

The practice of publishing examinations and answers helps students prepare for future examinations. A recent development is that multiple-choice and true/false answers are posted on the CAS Web Site during the week following the examinations. The Task Force considered the release of the Examination Committee's model solutions for essay questions at the same time, as opposed to the current practice of releasing actual successful answers after grading is completed. The Task Force noted that answers are often refined during the grading process; alternative solutions are considered. Earlier release of solutions would not increase their educational value to students who are studying for future examinations. Members debated the merits of releasing "model" answers versus successful answers submitted by candidates and recommended no changes. However, when there is more than one successful answer, the Examination Committee should consider releasing more than one successful answer.

There was also discussion regarding the procedures used by the Faculty/Institute of Actuaries (F/IA) to publish answers to essay questions on casualty examinations. The F/IA publishes a "model" answer followed by a narrative description of how students did, what they tended to overlook, and what mistakes were frequently made. This effort would be extremely time-consuming for the Examination Committee and it is unclear whether this effort could help students study for future examinations. However, the Examination Committee might want consider trying this approach, perhaps on a test basis.

Recommendation:

- **The CAS should continue the practice of publishing all examinations and all answers to help students prepare for future examinations.**

Examination Issues—Discussions and Recommendations **(continued)**

Pass Scores

The Task Force discussed the issue of releasing pass scores for examinations. After considerable discussion, the Task Force developed a general guideline, which it used for other issues as well, that information that has educational value for students should be released; examination information that is not educational in nature should be kept confidential. The Task Force concluded that precise pass scores do not provide any real educational value to students studying for future examinations and could be a source of contentious debate with students who failed by a small margin. Therefore, the current policy of not publishing them should be continued.

The Task Force noted that the process of determining a pass score is more complex than described in the *CAS Examination Committee Procedures Manual*. The description in the manual should be clarified to describe the roles and considerations appropriate to those involved at all levels—from Part Committee to Vice President-Admissions.

The Examination Committee has recently published an article describing the grading process. Working with the Student Liaison Committee, the Examination Committee should periodically publish articles describing the process, including the decision not to publish passing grades.

Recommendations:

- **The Examination Committee should better document the process for selecting passing grades in the *CAS Examination Committee Procedures Manual*.**
- **The Student Liaison Committee, working with the Examination Committee, should continue to periodically publish articles describing the examination and grading process to students to help demystify it.**

Numerical Grades

Current numeric scores lead many students to believe they were close to passing. A “5” means that the score was within 10% of the pass score (54 if the pass mark is 60). It is not unreasonable to expect that about 35% of the failing students get “5”. Although a “5” may not be close to passing, many students think it is. Another scoring approach might give students more precise information and possibly discourage appeals by students with a “5.”

Recommendation:

- **While the Task Force had no specific suggestion, the Examination Committee should examine alternative approaches to assigning point grades.**

Appeals

Examination analyses currently are sent to all candidates who receive a failing grade of “4” or “5.” (Other candidates who did not pass can request a copy.) The current program provides a question-by-question analysis. This process can help students identify areas of weakness requiring more intense study.

Several students suggested that they should be able to receive copies of their own essay responses. The Task Force did not believe that the amount of additional work required to release individual essay responses was justified in terms of helping students prepare for future examinations and decided not to recommend a change in the current practice.

Examination Issues—Discussions and Recommendations **(continued)**

Appeals (continued)

Shortly after taking an examination, some students will challenge the quality (clarity, accuracy, incompleteness, etc.) of a question(s). The Examination Committee considers these inquiries and may itself take issue with some questions during the grading process. When these challenges are determined to be meritorious, adjustments are made in the grading to not penalize students for poor quality questions. The Task Force believes this process adds to the quality of the examination process and should not be revised.

In contrast to other professional organizations, the CAS appears to have a liberal policy for allowing students to appeal a failing grade. (See Appendix D.) An appeal results in a review of the score for the appealed question(s) and generally the preparation of a written response to the student. Appeals can be burdensome to the senior members of the Examination Committee, resulting in a substantial drain on their limited amount of time as CAS volunteers. As these individuals already have a heavy workload, the Task Force considered but rejected a revision in the current policy on appeals to discourage frivolous appeals of failing grades. Our reasoning was that frivolous appeals are easily dismissed for not meeting the requirements of a valid appeal. The following data indicate the number and percentage of students making appeals in the past three years:

	<u>Spring</u>	<u>Fall</u>
1996	56 (1.6%)	22 (0.7%)
1997	51 (1.5%)	30 (0.9%)
1998	41 (1.2%)	16 (0.5%)
1999	22 (0.6%)	

In our opinion, the Examination Committee should always provide a written response so that the student knows that the appeal has been considered, but need not tailor the response to the student's particular circumstances.

Recommendation:

- **The Examination Committee should continue to use its current policies and procedures for appeals.**

Examination Committee Membership

Three areas of Examination Committee membership were discussed:

- Examination Consultants
- Examination Part Chair
- Examination Committee Members

Currently there are consultants for each examination. A consultant may be the second most important person (next to the Part Chair) on an Examination Part Committee in ensuring a quality examination. Helpful items should be distributed on a regular basis to all consultants, particularly new ones. A list of steps for a consultant to take in reviewing the examination should be provided. A more formal orientation procedure could help new consultants. This may also include examples of problems that consultants have spotted, examples of good consultant reports, ways to check the length of the examination, methods to check the difficulty of the examination, or a list of items that need to be checked on each question. Consultants should provide technical expertise, as well as comment on examination length, overall structure, question structure, and blueprint coverage. An annual conference call among the

Examination Issues—Discussions and Recommendations **(continued)**

Examination Committee Membership (continued)

consultants could help to spread and maintain good practices. The Task Force concluded that new Fellows should not be used as consultants because experience is an important dimension of being a consultant.

Consultants can help maintain continuity in the examination process. Changing both the Part Chair and the consultant for an examination at the same time should be avoided.

With regard to the Examination Committee Part Chair position, discussion focused on whether the workload had become too large for one person to handle. At some time in the future, the CAS may have to consider paying an annual stipend to Part Chairs. It is important that Part Chairs are well trained for their responsibilities. As communication between Syllabus and Examination Committees is critical to the success of the examination process, a role of the Part Chair or the Assistant Part Chair should be to “foster communication with the Syllabus Committee.”

The Task Force recognized the value of Examination Committee members having expertise in the material being tested. Using members who are not familiar with the material may result in them writing poor quality questions (inaccurate, repetitive, rote, not thought provoking, etc.). In addition, although some training materials are sometimes provided to new members, it is important to develop a more formal orientation procedure to assure that new committee members understand their roles and what is expected of them.

Recommendations:

- **A formal orientation procedure for new consultants and new committee members should be developed to assure that the new participants’ roles and expectations are understood.**
- **Consultants should continue to provide technical expertise as well as comments on examination length, overall structure, question structure, and blueprint coverage.**

Examinations on PCs/Examinations on Demand

Suggestions were made that CAS examinations could be taken on personal computers. Although this would not be practical now, it may be a possibility within a few years. The Task Force believes that it would not be possible to offer examinations on demand because of the large pool of questions that would be required.

Recommendation:

- **The Examination Committee should consider the use of personal computers on examinations at some point in the future in conjunction with their ongoing discussion of calculators.**

Jointly Administered Exams

A significant difference between the CAS and SoA is the current policy on the publication of examinations. The CAS publishes the examinations for the past three years; the SoA releases selective examinations after a number of years. Using old examinations for practice is a valuable educational tool for students. The Task Force supports the current CAS policy of publishing examinations and recommends its continued use.

Examination Issues—Discussions and Recommendations **(continued)**

Jointly Administered Exams (continued)

The Task Force understands that the joint CAS/SoA task force is revising the list of appropriate calculator models. The CAS/SoA should continue to monitor the need and appropriateness of calculator models and possibly computers.

CAS Examination Grading Sessions

Current policy allows Part Chairs to choose the grading session sites with the assistance of the CAS meeting planners. Part Chairs submit budgets for grading sessions. The CAS has an established reimbursement policy for travel and hotel expenses associated with the grading session. The Task Force does not recommend a change to the current procedures.

Examination Committee Volunteers

Because of employer demands on the time of CAS members, it is difficult to fill Examination Committee openings (despite the large number of new Fellows in recent years). The CAS should avoid increasing the hourly commitment required by an individual volunteer. The other recommendations in this report must be considered within this practical restriction.

Joint Syllabus and Examination Issues—Discussions and Recommendations

Examination Blueprints

Some Examination Committee members find the blueprint to be a useful guide. Others would prefer to have specific feedback from the Syllabus Committee on whether each examination question reflected the objective(s) of the readings. The Syllabus Committee has begun to compare each examination to its blueprint. If the Examination Committee members are involved in the development of objectives and blueprints, it may help them to write better, more thought provoking questions. A professional educational consultant(s) could help the Syllabus Committee prepare better blueprints.

For the blueprint, it would be helpful for the Syllabus Committee to identify for the Examination Committee “core readings” and “secondary readings.” “Core readings” may be tested more thoroughly/frequently. “Secondary readings” would be tested over a period of time. Some readings could be categorized as background and not tested.

Recommendations:

- **The Syllabus Committee should enlist the assistance of a professional educational consultant(s) in the preparation of blueprints.**
- **The Syllabus and Examination Committees should continue to discuss the learning objectives and the blueprints for each examination.**

Communication between the Syllabus Committee and the Examination Committee

Effective communication between the Syllabus Committee and the Examination Committee is critical to the examination process and the Examination Committee. Over the past couple of years, there has been increased communication between the two committees (e.g., Syllabus Committee Part Specialists requesting input from Examination Committee Part Chairs on proposed changes, feedback forms from the Examination Committee to the Syllabus Committee following examinations, and attendance of the Syllabus Committee Chairperson at the Examination Committee Officers’ annual meeting). In 1999, the Syllabus Committee and the Examination Chair, Vice Chairs, and Part Chairs held a joint meeting at the CAS Leadership Meeting in March. They found this face-to-face interaction to be very helpful.

Recommendation:

- **The Syllabus and Examination Committees should continue to meet on a regular basis to discuss common issues and to explore additional ways of enhancing communication between the two committees.**

Feedback from Seminar Teachers/Actuarial Educators

Currently the Syllabus and Examination Committees do not receive ongoing feedback from those who teach review courses/seminars because of possible allegations of conflict of interest. The Task Force feels that input from these teachers and other actuarial educators would be informative and could be obtained confidentially to avoid any conflicts of interest.

A feedback form should be developed and mailed to review course/seminar teachers on a regular basis. Responses would be sent to the CAS Office to assure anonymity and forwarded to the Examination Committee and Syllabus Committee as appropriate. The CAS office would provide thank you letters to the survey respondents.

Joint Syllabus and Examination Issues—Discussions and Recommendations (continued)

Feedback from Seminar Teachers/Actuarial Educators (continued)

Recommendation:

- **Input on readings and examinations should be solicited regularly from actuarial educators and teachers of examination seminars.**

Other Issues—Discussions and Recommendations

Student Liaison Committee

The Task Force recognizes the importance of communication between the CAS and its students and the unique role that the Student Liaison Committee can serve to improve the process. The Student Liaison Committee should continue to actively solicit information about changes and other relevant information from the Examination and Syllabus Committees and appropriately communicate this information to CAS students. The Committee should also provide student feedback to the Syllabus and Examination Committees.

Recommendation:

- **The Student Liaison Committee should continue to foster communication between the students and the Syllabus and Examination Committees.**

Staff Actuary

The Task Force feels that the demands being placed on members of the Syllabus and Examination Committees have expanded over the years. In many cases, committee members are unable to commit any more time to syllabus and examination functions. The CAS has probably reached the point in time to consider hiring one or more staff actuaries. The staff actuary would have a good perspective of the whole education process. A key function of the staff actuary would be to bring and maintain continuity to the entire process including educational policies and objectives, examination blueprints, syllabus readings, and examinations. Educational consultants may contribute additional value to certain areas of the process, including training for question writers, construction of blueprints, and offering advice on other pedagogical issues. Although the staff actuary would work closely with the Admissions Committees, the respective committees ultimately should be responsible for their charge and make final decisions.

A task force would need to be created to develop a full-time job description. It is important that the duties would be varied and challenging so that the person does not become bored, isolated, or out-of-touch with actuarial work. The position must be broader than working on examinations. The staff actuary would have a role in actuarial research. Part-time actuaries may be an option. A helpful starting point for a job description could be the duties of the SoA's education actuaries who serve the SoA equivalent of the Syllabus and Examination Committees. A brief list of an SoA staff actuary's duties include:

1. Coordinate committee activities.
2. Be familiar with policies in order to provide continuity for the volunteers.
3. Support item writers.
4. Provide analysis of examination statistics.
5. Provide expert input into cheating incidents and defective questions.
6. Perform special studies, as needed.
7. Work with authors and editors of new materials.
8. Resolve general policy issues.
9. Provide general management support for the committee structure.
10. Assist in recruiting volunteers, authors, etc.
11. Provide ombudsman support.

We also understand that ASPA has recently hired a staff actuary to deal with issues related to their examination process.

Other Issues—Discussions and Recommendations (continued)

Staff Actuary (continued)

We expect that a CAS Staff Actuary would provide additional support to the existing process, not replace existing roles.

Recommendation:

- **The CAS should hire a Staff Actuary to provide additional support for committee work, particularly for the Examination Committee.**

Specialty Examinations

Should the last CAS examination be a specialty examination? Would some of the current material that must be learned by all students best be learned only by those who plan to work in a specific area? Or is it still a strength that a new Fellow has broader knowledge? If the CAS were to consider a specialty examination, it would probably need to return to ten examinations because the nine examinations on the 2000 *Syllabus* are already packed with material, unless some material from the existing *Syllabus* could be moved to a specialty examination. The Board should initiate a study of this issue in 2000. It is anticipated that the study would take a couple of years to complete, and any recommended changes would take a couple of years to implement.

Recommendation:

- **In 2000, the CAS Board should begin to study the issue of specialty examinations.**

Miscellaneous

The requested feedback from members and students identified the following topics that are not in the purview of the Task Force:

1. Should a “para-actuarial” designation be developed? Although the Task Force generally is not in favor of such a designation, it should be referred to the Board.
2. The Task Force received several comments about the transition rules and the syllabus readings for 2000. A special task force addressed the transition issues. Its recommendations were accepted by the Board of Directors.

Recommendation:

- **The CAS Board should consider the issue of developing a “para-actuarial” designation.**

Appendix A—Summary of Feedback

Summary of Comments to the CAS Task Force on Review of Education and Examination Process and Procedures

<u>No.</u>	<u>Comment, Concern, or Recommendation</u>
General Comments	
2	Develop a “para-actuarial” designation—broaden scope of actuarial profession.
2	New education and examination system seems better than current system.
2	Categories of Students: (1) Stars: Most capable, conceptualize ideas and can apply them, (2) Good Test Takers: Good at memorizing material, (3) Good Workers: Productive at work, but not good at memorizing; may put work above study, and (4) Not Actuarial Material.
1	Design “graduate level” program with universities to educate candidates and current members on the latest in actuarial science.
1	CAS definition of “actuary” is too broad—the CAS examination process is specific to the insurance industry.
1	Distinguish between testable skills necessary for an actuary and “insurance detail” that should not be tested.
1	Have alternative to self-study course of study.
1	CAS Syllabus states, “...those candidates demonstrating the required level of competence with the material will pass.” Exam process is not a relevant judge of “required level of competence.”
1	Pass out a flyer at the May examinations to remind students to give feedback to the Task Force and to inform students of progress. Give time frame for final report.
1	Process needs input from more members—particularly from newer members.
1	The examination process is just a way of limiting membership.
1	The process is too long—those in similar professions can move to the forefront more quickly than those in the actuarial profession.
Syllabus and Examinations	
7	Too much material on the Syllabus/examinations.
2	Syllabus and Exam process have improved over the past few years.
1	Exam system reasonable—to sign off on an insurance company statement, need commanding knowledge of all material.
1	Review threads of Student Discussion Forum for ideas.
1	Is the Syllabus and examination process more conducive to learning than on-the-job training?
1	Have small elective courses.
1	Include generalized linear models with particular reference to their applications in pricing and reserving.
Syllabus	
6	Syllabus readings are out of date—“classic” old material should be compiled into a Study Note.
5	Study Notes are good—need more concise papers (some students referred to Feldblum’s notes as good).
3	Study Notes and articles should be updated/rewritten on a regular basis.
2	Syllabus readings are of high quality.
2	CAS readings are poorly written and largely incomprehensible.
2	Some older Study Kit articles are not clearly printed and should be retyped.
1	Professional could help coordinate Syllabus readings.
1	Part 6 and 7 readings too heavily slanted toward mathematical theory.
1	Like new approach for Syllabus.
1	Recent revisions (1997) to 8C was dramatic improvement.

Appendix A—Summary of Feedback (continued)

No.	Comment, Concern, or Recommendation
Syllabus (continued)	
1	Request feedback from educators and seminar instructors.
1	Add more readings on modern finance and financial pricing of insurance.
1	Place a list of objectives at the beginning of every paper.
Examinations	
15	Too much rote memorization required—use more “thinking questions” on examinations. (Exam questions focus on trivia in readings, not on core concepts.)
6	Students should have the right to obtain copies of their own answers.
5	Pass ratio seems fixed; people are more prepared, but the same (low) percentage pass.
5	Allow more time on the examinations; difficult to complete, even if prepared. (One person said to add more questions also.)
5	Reveal the raw scores and the passing mark.
5	Eliminate trick questions (including triple true/false or multiple-choice questions).
4	Examination quality is inconsistent from sitting to sitting—should be a way to judge consistency.
4	Have examinations prepared by professionals—too much is expected of volunteers.
3	Release complete model examination answers instead of sample solutions (soon after examination).
3	Exam questions do not reflect the Syllabus readings.
2	Continue to release the CAS examinations; they are a good resource for learning.
2	Use multiple-choice essay questions (i.e., “Match the statement with the reasons provided”).
2	Pass ratios for the Bar and CPA are much higher—and they are single examinations.
2	Partition large examinations so students can concentrate on material.
1	Exams should have less lists—if necessary, use multiple choice for list-type questions.
1	Is it fair to give extra time to students with ADD?
1	Have better communication between the various examination committees.
1	Track the performance of marginal students (those near the pass mark).
1	Too much depends on multiple-choice answers (guessing adjustment).
1	Exam questions should be given points based on difficulty of question.
1	If the goal is to test each reading, then continue to use the “rapid fire short answer recite-and-regurgitate” format.
1	Pass ratio—why is the pass ratio not higher on high-level examinations? The lower-level examinations have a large population with undeveloped study habits.
1	If a student receives a 5 on the same examination three times, the person should pass.
1	Test other important skills, e.g., computer spreadsheets, communication, etc.
1	More direction requested on how to answer essay questions—what is expected?
1	Have open-book examinations.
1	Current practice of mailing your own examination back to yourself is good.
1	New joint examinations good idea—delay choice between CAS and SOA.
1	As many examinations as possible should be jointly administered by the CAS and SOA—why not new CAS 8 and SOA 6?
1	The old 5* grade should not be part of new system.
1	Let students study for a day and have the test the next day.
1	Weed out non-actuarial candidates in the first three examinations; then allow students to learn the material in the upper-level examinations.
1	Continue the examination process; do not let the universities do the credentialing.
1	There are only so many ways to ask a question about a reading. Trying to make it different than past questions can lead to a distorted question.

Appendix A—Summary of Feedback (continued)

No.	Comment, Concern, or Recommendation
Examinations (continued)	
1	Questions should be relevant to problems of today—historical approaches should be used for perspective only.
1	“Thinking questions” require time to contemplate the application of the concept. Time is limited—should be no more the 10% of examination points.
1	Have three Fellows independently answer each question to help identify defective questions prior to examination.
1	The point structure should be consistent from examination to examination—half a point may be fair to identify and describe a term.
1	Increase in examination fees is ridiculous.
1	On multi-part questions, the second half should not have more points than the first half that is required to obtain the answer for the second half.
1	In addition to sample solutions, publish a failing answer—may reduce appeals.
1	CAS analyses are better than SOA analyses.
1	The examinations are difficult objective tests with an emphasis on the ability to quickly develop problem-solving techniques.
1	Some questions are open to several interpretations. Use academics to help phrase questions to avoid ambiguities.
Appeals	
1	Appealing essay questions is more difficult than appealing multiple-choice or true/false questions.
1	Responses to appeals should address the specific issues raised.
1	Do not charge for appeals—no reasonable fee would change cost/benefit analysis. Students who believe that they are unfairly treated will be angered.
2000 Syllabus	
1	New Exams 3 and 4 unfair to casualty students—too much material on mortality/survival models.
1	Too much material on new Exam 7.
Transition	
8	Not enough transition time before the 2000 structure is implemented—continue to offer current examinations after 2000.
3	Transition rule for new Exam 7 is not fair—raising the bar for ACAS.
2	For those losing examinations in the transition process, is there a possibility of reflecting one’s past examinations—so that they are not totally lost?
1	Reconfiguration of structure will result in increased travel time.
1	Students were not consulted about transition rules.
1	Final transition rules are different than those announced in June 1997. Joint Exams 3 and 4 contradict original report.
1	Not fair that a person with only Part 1 is equal to a student with Parts 1, 2, 3A, and 3C.
1	Outraged by comment that subpar candidates can pass examinations that were partitioned.
1	One’s transition status should be no more than what was actually passed in the current system.
1	The transition rule should be such that a student receives at least the number of <i>full</i> examinations for which he/she has obtained credit.

Appendix B—Survey Results

To determine how students and CAS members feel about examination length and the issue of testing every reading on every examination surveys were made at three large actuarial employers and provided the following responses:

	<u>Student</u>	<u>Member</u>
1. Given the current examination structure and the current amount of Syllabus material, should we:		
a. Increase the length of examinations	40%	21%
b. Decrease the length of examinations	14%	3%
c. Keep the length of examinations constant	46%	76%
2. If more material were added to the Syllabus, should we:		
a. Increase the length of examinations	65%	48%
b. Decrease the length of examinations	3%	3%
c. Keep the length of examinations constant	32%	49%
3. How do you feel if all of the readings were not tested on each examination sitting?		
a. In favor	49%	48%
b. Opposed	51%	52%
4. If more material were added to the Syllabus, which would you prefer?		
a. Increase the length of examinations but test every reading	52%	48%
b. Hold the length of examinations constant but don't test all of the readings at each sitting	48%	52%

Appendix C—Number of Candidate Registrations

Number of Candidates Registered for CAS Examinations (Parts 3B, 4-10)

Year	Spring	Fall
1980	529	619
1981	656	717
1982	690	888
1983	903	853
1984	883	856
1985	839	838
1986	901	878
1987	954	973
1988	1158	1155
1989	1445	1413
1990	1732	2118
1991	2375	2364
1992	2883	2744
1993	3065	2957
1994	3288	3150
1995	3472	3068
1996	3329	2954
1997	3259	3111
1998	3492	3126
1999	3495	3016

Appendix D—Appeal Policies of Other Professional Organizations

In January 1999, the CAS Examination Committee formed the Examination Committee Appeals Task Force to investigate the appeals procedures of other professional organizations and to form a recommendation on changes to the CAS examination appeals policy. In April 1999 the Task Force presented their findings to the Examination Committee. The CAS Task Force on the Review of the Education and Examination Process and Procedures reviewed the work of the Examination Committee Appeals Task Force and the survey findings are summarized below.

The professional organizations surveyed included:

- The Society of Actuaries (SOA)
- The American Institute for Chartered Property Casualty Underwriters / Insurance Institute of America (AICPCU / IIAA)
- Certified Public Accountants (CPA)
- The American College exams for Chartered Life Underwriters and Chartered Financial Consultant (CLU / ChFc)
- The Health Insurance Association of America (HIAA) exams for Health Insurance Association (HIA) and Managed Health Care Professional (MHP)
- The Life Office Management Association (LOMA) exams

Eleven questions were asked of these groups:

1. Are past exam questions released to students?
2. If so, are answer keys for these questions released to students?
3. What is the procedure for setting the pass score? Is it a fixed score for each exam or is it based on the individual exam results?
4. Do students receive their actual score? If yes, is it given to all students whether they pass or fail?
5. Can a student receive a copy of their actual answers? If yes, is there an administrative fee for this service?
6. Is there an appeal process if a student thinks there is a problem with a question or with their grade?
7. If yes, what is the timing for submission of the appeal?
8. How do you respond to appeals?
9. How often is each exam given?
10. What is the length of time given to the students for each exam?
11. Do the exams consist of short answers (true/false or multiple choice) questions and essay questions?

The chart on the next page recaps the answers to the survey

Appendix D—Appeal Policies of Other Professional Organizations (continued)

Question #	SOA	CPCU/IIAA	CPA	CLU/ChFc	HIAA	LOMA
1 / 2	No	No	No	No	No	Yes
3	Curve	70	75	70	70	70
4	0 – 10	CPCU: Pass/Non-Pass IIAA: Excellent, Good, Pass, Non-Pass	No	No	Honors Pass, Pass, Non-Pass* (within 10 points), Non-Pass (by more than 10 points)	Pass, Fail * (within 10 points) Fail (by more than 10 points)
5	No	No	No	No	No	No
6 / 7 / 8	Yes Within 2 weeks after exam (However will review letters received after grades are released)	Yes Student can note defective questions during exam only	Yes Within 4 days after exam	Yes Must submit at test site or shortly thereafter	Yes Within 2 days after exam	Yes Within 1 week after exam
9	Most twice a year (100 and 110 are given 3 times a year	Some twice a year, some 3 times a year, some intro exams only on request	Twice a year	Examinations on Demand (via computer)	Examinations on Demand (via computer)	Examinations on Demand (via computer) Paper exams are given on request
10	1.5 – 4.0 hours	3 hours	13 hours over 2 days	N/A	N/A	N/A
11	Early exams – all MC Upper exams – MC & essay	MC exams only being introduced	MC & essay	All MC	All MC	All MC

Appendix E—CAS Education and Examination System

The CAS Vice President-Admissions supervises the CAS education and examination system. The Vice President-Admissions is supported by the following four admissions committees.

CAS Education Policy Committee

The Education Policy Committee establishes the goals and objectives of the CAS education and examination system to ensure that the needs of the Society, its members, and its potential members are met. The committee also monitors the operations of the other educational and examination committees to ensure continued effectiveness.

CAS Syllabus Committee

The Syllabus Committee determines the scope and content of the CAS Syllabus and course of readings for CAS Examinations.

A chairperson supervises the committee which is composed of Fellows who represent a broad spectrum of CAS members including insurers, consultants, regulators, and academicians. At least one representative of the Canadian Institute of Actuaries (CIA) also serves on the committee; usually at least one of the representatives is a member of the CIA Education and Examination Committee. One or more members specialize in the material for each examination part. These specialists recommend Syllabus changes; however, recommendations must be approved by the committee.

The “Materials for Study” are regularly reviewed by members of the Syllabus Committee. Both short- and long-term goals for improvement are developed. Textbooks and articles may be designated for inclusion. If the committee determines that new study material needs to be developed or that existing material needs to be revised, the committee may commission the creation of Study Notes for inclusion. Every effort is made to develop material that is appropriate, relevant, up-to-date, concise, and well written. Suggestions for improvement are always welcome and should be directed to the Syllabus Committee at the CAS Office address.

CAS Examination Committee

The Examination Committee organizes, manages, administers, and grades the CAS Examinations. The committee also establishes the standards to be achieved by successful candidates.

The chairperson supervises the committee and is responsible for the overall administration of the CAS Examinations. The chairperson is assisted by several senior committee officers with title of General Officer. The committee is subdivided into Examination Part Committees, each headed by an examination part chairperson. The responsibility for each CAS Examination is assigned to a part committee that writes, grades, and maintains the standards for that examination. Each part committee is assisted by 1 -2 examination consultants who are CAS members experts on the material covered by that examination. In addition, some part committees are assisted by academic consultants who are independent experts from the academic community.

Each examination is drafted by the responsible Examination Part Committee to test candidates’ knowledge of the items listed in the “Materials for Study.” The individual part committee, examination consultants, one of the Examination Committee General Officers, the Examination Committee chairperson, and, in some cases, academic consultants review each examination to assure its quality. Every effort is made to ensure that the questions fall within the scope of the “Materials for Study.” Complete coverage of all material is not practical for every examination every year. The goal is to produce examinations that contain representative, high-quality questions that test candidates’ knowledge of the material. Trick questions are deliberately avoided, and the wording of each question is considered carefully to eliminate possible ambiguities. Preliminary versions of each examination are thoroughly reviewed in relation to all of these factors before the final examination is approved.

Appendix E—CAS Education and Examination System (continued)

CAS Student Liaison Committee

The Student Liaison Committee strives to focus on issues of importance to candidates who are taking CAS Examinations. The committee serves as a direct point of contact for students to voice individual or group concerns regarding the education and examination process. It also provides a means for an exchange of information between students and the admissions committees via Future Fellows, a newsletter which it publishes quarterly. Two candidates who are actively involved in the examination process serve as advisors to the committee.

Appendix F—CAS Syllabus Goals and Objectives

One of the primary objectives of the Casualty Actuarial Society (CAS) is the development of qualified professionals in the field of casualty actuarial science. The CAS conducts an educational and examination program for prospective members in order to achieve this objective. The Syllabus goals and objectives are as follows:

1. To develop a general understanding of the social, political, regulatory, legal, and economic environment of the business of property and casualty risk.
2. To develop a thorough understanding of the fundamental mathematical concepts applicable to solving property/casualty risk problems and a high degree of skill in their applications.
3. To develop a comprehensive understanding of the business of property and casualty insurance, including underwriting, claims, marketing, and finance, and how these functions are performed and interrelate.
4. To develop a working knowledge of insurance policies and contracts.
5. To develop an expert knowledge of a broad range of techniques to solve property/casualty risk insurance problems; and to develop the ability to discern the appropriateness of techniques for particular applications based on a knowledge of the underlying assumptions, strengths, and weaknesses.
6. To develop an expert knowledge of a broad range of relevant and standard actuarial practices in order to present a framework for the use of problem-solving techniques.
7. To encourage a sense of inquisitiveness and creativity toward property/casualty risk problem-solving in order to foster an appreciation of the art in actuarial science.