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FELLOWSHIP EXAMS FROM A GRADER'S POINT OF VIEW

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Panelists from the Education and Examination (E&E) Committee will discuss:

- How examination questions are selected
- How to write a better examination
- How exams are graded

MR. ROY GOLDMAN: The last time a special session on E&E was held at a Society meeting was eight years ago, also in Quebec City. Curtis Huntington, who was then the general chairperson of the E&E Committee, conducted a session on how to prepare for actuarial exams, as well as how they are constructed and graded. That session was recorded in the *Record* 1985, Volume 11, No. 3. Much of it is still applicable, although I'll be pointing out three statements that are no longer accurate.

In addition to special sessions, a workshop for new Associates is conducted at nearly every Society meeting. There is always a representative from the E&E Committee to answer questions and give an overview of the E&E system.

The panel has a lot of experience in the E&E system. Speaking first will be Bob Campbell. In addition to being an FSA, Bob works as a consultant for Hewitt Associates in The Woodlands, Texas, and has a Ph.D. in mathematics. He began his E&E career in 1983 working on what's now known as 100 and 110. After working several years on those exams, he agreed to head the developmental effort on intensive seminars. The first intensive seminar we introduced was on Applied Statistics. We now also have one in Risk Theory. He did the job so well, that he was recruited to be a general officer on the education side.

Briefly, the Fellows working on the education side are responsible for developing the syllabus material and keeping the syllabus current. Ultimately, they decide what should be covered on the exams as part of basic education for Fellowship. Bob is currently education chairperson. Reporting to him are various committees responsible for each of the Fellowship tracks, the Associateship exams and seminars, research papers, and the Fellowship admissions course.

Linden Cole has been involved in E&E work for 25 years. And that doesn't count the years he took to become a Fellow. I won't say when that was, but I will tell you that there were eight exams when he became a Fellow, and they were numbered two through eight! I think there were a 4a and 4b, so that's how it works out to be eight exams. He then spent 12 years working on various E&E committees, including four years in Bob's current position. Since 1980, Linden's been working in the Society office. He was the second Fellow to serve in this capacity with the E&E system. He's now responsible for all the staff work in the life insurance practice field.

My name is Roy Goldman, and I work at the Prudential Insurance Company, where I'm the chief financial officer (CFO) and chief actuary of the group department. I've been involved in E&E since late 1980. I became a Fellow in 1980 and immediately signed up to work on the exams. I, too, have a Ph.D. in mathematics and was pleased to be recruited to write questions for the life contingency exams. I was chairperson during the transition to the new textbook *Actuarial Mathematics* covering both risk theory and life contingencies. At that time, we also integrated interest theory with risk theory and life contingencies.

I then became involved in the Future Education Methods Task Force, which came up with ideas like research papers, intensive seminars, and the Fellowship Admissions Course. In 1987, I became a general officer on the examination side, and for the last two years I served as examination chairperson, which meant that, among other things, I was most responsible for determining the pass marks. I currently serve as vice general chairperson. In that capacity, I help the general chairperson oversee both the education and the examination sides of the committee.

We'll be talking about the Fellowship exams from a grader's point of view. We'll emphasize the examination responsibilities of the E&E Committee. But, believe it or not, we general officers probably spend more of our time discussing education. The first "E" of E&E is very important. The exams are merely a chance for you to show us that you understand the material. And, we hope you have learned something in the process.

Besides developing the syllabus, constructing the exams, grading the exams, and determining the pass marks, we spend a great deal of time planning for the future and thinking about education policy. Our overall modus operandi is *kaizen*, if I may use a Japanese word alongside a Latin word. *Kaizen* means continuous improvement. We don't think the E&E system is perfect, yet. We're continually trying to improve it, and certainly, any suggestions that you have are both welcomed and taken very seriously.

ORGANIZATIONAL STRUCTURE

MR. ROBERT C. CAMPBELL: My role is to offer some insight into how the examinations are developed, including the development and maintenance of the syllabus (or, in the language of the catalog, the "Course of Reading").

Roy has already described the organizational structure that underlies the education and examination functions of the Society. At the top of the organizational structure is the Society's elected Board of Governors, which has responsibility for establishing the Society's mission and broad policy goals. A couple of brief passages from the catalog illustrate the Board's outlook on the E&E function, and the level of involvement that the Board has in that function.

The Mission Statement of the Society of Actuaries begins with these words: "The Society of Actuaries is an educational, research, and professional membership organization whose purposes are to promote high standards of competency and conduct among its members and to advance the state of actuarial science." So we see that the Mission Statement makes immediate reference to the Society's educational function.

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In support of the Mission Statement, the board has established six "general objectives" of the Society. The first objective is education. The general objective with respect to education is worded like this: "Provide basic and continuing education in theoretical and applied aspects of actuarial practice." These fundamental statements make the Society's commitment to education clear. The commitment is further reflected in the amount of activity in the E&E process. There are over 500 Fellows of the Society who volunteer to participate in E&E work, and there is a substantial investment in paid staff (technical, administrative, and clerical) and other resources in the Society office. Our educational system is a distinguishing feature of our profession. People who know little else of what an actuary is or does frequently do know that we take a lot of demanding examinations. (We hope that they understand that means that actuaries know a lot about what they're doing and are very good at it.)

The next level of governance of the E&E function is the Education and Examination Management Committee (formerly the Education Policy Committee), which establishes broad guidelines and deals with issues that are directly affected by those guidelines. We'll discuss some examples of the E&E Management Committee's involvement in a few minutes.

At the operational level, we have the Education and Examination Steering and Coordinating Committee (formerly known as just the E&E Committee). Within this committee (which is headed by a general chairperson and a vice general chairperson), there are separate committees for education and for examination. Within the Education Committee, there is a general officer (GO) for each of the specialty tracks, as well as a GO for the core courses, a GO for the Associateship courses, and a GO for the Fellowship Admissions Course. The education GOs serve as chairpersons for their respective Education Objectives Committees, which are the committees that directly coordinate the development and maintenance of the syllabus.

The structure of the Examination Committee is similar to the structure of the Education Committee. There are GOs for each of the specialty tracks, the core courses, and the Associateship courses. In addition, there is a GO in charge of translation, who oversees the French language versions of the examinations. The examination GOs oversee the work of examination committees for each course. These course-specific examination committees involve large numbers of volunteers who serve as item-writers or graders for the examinations.

FUNCTION OF E&E COMMITTEES

Let's turn now from structure to function, beginning with the E&E Management Committee, which has general oversight responsibility for the E&E function. The involvement of the E&E Management Committee can probably best be described by citing some recent examples:

- **Modification of requirements:** Recent changes in the Core courses (deletion of some material, accompanied by reduction in credits; inclusion of an additional Core course to expand coverage of investment topics) required approval of the E&E Management Committee.
- **Addition of specialty tracks:** The E&E Management Committee was heavily involved in the initial planning for the Finance track.

- Addition/deletion of courses: Course G-527 (Health Policy) was added in the fall of 1992, as a result of a Board initiative that was assigned to the E&E Management Committee.

At the E&E Steering and Coordinating Committee level, the educational function is managed by the Education Committee, with the real day-to-day development and maintenance of the syllabus handled through the various Education Objectives Committees. These committees receive input from a variety of sources. Much of the input is directly solicited, some is unsolicited, but all of it is welcome. There is ongoing dialogue with the course-specific examination committees to identify strengths and weaknesses of the material from a testing perspective.

Under the emerging practice-area-oriented organizational structure of the Society, each practice area has its own Practice Education Committee, which is a valuable source of input for the Education Objectives Committees. The special interest sections and their councils have historically been a source of good information (and volunteers to write educational materials) as the syllabus has been updated or modified over the years.

Within the office of the Society, the Education Actuaries (like Linden) function not only as coordinators of the educational function, but also as direct sources of ideas and material for the syllabus. Any member of the Society is always welcome to offer suggestions for improving the syllabus, as are actuarial and nonactuarial academics (who may be aware of topics or materials sooner than the practicing professionals).

Finally, examination candidates (who are, after all, closer to the material than anyone else) are encouraged to comment on study materials and to offer suggestions. This broad involvement gives the Education Objectives Committees the benefit of a wide variety of perspectives, each of which has its own value to the process.

DEVELOPMENT OF COURSE OF READING

The development of the Course of Reading for a particular course consists of identifying or developing study materials that are appropriate to the scope of the course, as indicated by its course number (which suggests the level of coverage) and the number of credits associated with it (which suggests the amount of coverage). For some topics, textbooks or articles may already exist, in which case these sources are candidates for inclusion in the Course of Reading. Frequently, though, the state of knowledge for a particular topic is changing (or maybe even just developing), so that there is no suitable material available in the literature. In those situations, study notes are commissioned by the Education Objectives Committee for the course. Authors and reviewers are recruited to prepare study notes that will satisfy the following criteria:

- Appropriateness to the level of the course
- Relevance to the topic
- Timeliness relative to current knowledge and practice
- Economy of expression (i.e., conciseness)
- Clarity and stylistic consistency

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While no one would claim that every study note satisfies all of these criteria, the standards are taken seriously, and authors and reviewers are committed to achieving them to the best of their ability.

An important consideration in the development of the course of reading for a particular course is the quantity of material that is presented to candidates. Courses that carry different amounts of credit have different amounts of material associated with them. Measuring the quantity of study material requires analysis of not only the raw volume of the material (as measured by, say, counting the pages) but also the complexity of the material. A small amount of complex material may require the same investment of candidate time and effort as a substantially larger volume of less complex material. Sometimes the tradeoffs are difficult to gauge, and the Education Objectives Committees welcome comments from candidates about the perceived balance between quantities of material and number of credits earned.

After material has been developed for a particular course, there is an ongoing maintenance effort to keep the material current. One discipline that is imposed on the process is a "sunset" review policy, under which each piece of study material is reviewed on at least a triennial basis to test its current appropriateness. In addition, as there are changes in a practice area, new materials produced for some other purpose (textbooks, articles, presentations at professional meetings) are reviewed and considered for inclusion in the Course of Reading. Comments from candidates are also helpful in the effort to maintain the syllabus. In the mailing that contains the introductory study note for each course, there is a form that requests comments about the study materials. While it's clearly not appropriate to try to complete the form at that time, I would encourage you to keep the form until after you have taken the examination, at which time you will be in a good position to comment on the study material. All comments are taken seriously (but not personally). I should mention that the Education Committee is considering other means of soliciting candidate input that might generate a higher response level, such as providing the evaluation forms at the time of examination, rather than with the introductory study note.

DEVELOPMENT OF EXAMINATIONS

Now we come to the construction of the examinations. The process is probably more elaborate (and less malicious) than many candidates might think. The starting point for construction of an examination is the examination "blueprint." The blueprint, which is a responsibility of the education GO associated with the course, identifies the topics and the associated study materials and allocates (on an approximate basis) the examination points among the various topics and materials. For courses that cover a wide variety of topics, it isn't feasible to cover every topic every time an examination is developed, so there is some flexibility in the blueprint to allow for that. The blueprint provides both a starting point and a checkpoint, in the sense that the final version of the examination is compared to the blueprint to ensure that a proper balance has been achieved.

Armed with the blueprint, the examination committee for the course can set about the task of developing the examination. An initial call for questions goes out to the item writers, requesting them to develop questions on particular topics and materials (or combinations thereof). Then the questions that are submitted are collected and

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evaluated at a "prereview" session. Some questions may be accepted as submitted, but usually questions are subject to some modification. Among those that are not chosen for the current examination, some may be saved for a later administration, and others may be rejected outright. Sometimes ideas from two or more questions can be combined into a single question that gives candidates the opportunity to synthesize information from a variety of sources. The result of the prereview process is a draft examination.

The draft, along with suggested grading outlines for written-answer questions, is then subjected to the next step in the process, "central review." At central review, the chairs and vice chairs of the various examination committees, along with the academic advisors for courses that have them, meet with the education GOs and Examination GOs who are associated with that particular course. This group (typically five to seven people for each course) goes through the examination in detail. The review addresses not only the content and balance of the examination, but also the suitability of the grading outlines.

After central review, the questions are returned to the original item writers to confirm that the revised question makes sense and covers the material in a reasonable way. The examinations are then typed and translated, after which they are subjected to a final round of proofreading.

As the examinations are developed, several considerations guide the process. First, each examination is to cover the material for the course, as defined by the blueprint. In some cases, measuring the coverage is fairly straightforward, but in other situations (especially where the material is complex or questions have been developed to test more than one topic) it may require more discussion to reach agreement about how well the examination matches the intent of the blueprint.

Second, the questions need to be clear, in the sense that the candidate should be able to understand what the question is asking, even if the response requires extensive reasoning or judgment. For example, a question that asks the candidate to make a recommendation in a particular situation may not have a single "correct" solution, but the question can nevertheless clearly ask, "What do you recommend?"

Third, each question needs to be assessed according to the cognitive skills that a complete response would require. As Roy will discuss later, some questions require only recall, while others require analysis, synthesis, or judgment. On higher level examinations, there should be more questions that require candidates to demonstrate these higher cognitive skills.

Fourth, the examinations are reviewed with respect to the time that is allocated to the examination as a whole, and the implications of that allocation to how much time candidates can invest in earning each examination point.

From the standpoint of quality assurance, there are a number of safeguards built into the system. First among these is the training that is provided for item writers. In the training, the item writers have the opportunity to see both good and bad examples of questions, to get acquainted with the process as a whole, and to hear the suggestions of more experienced people.

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A second safeguard is the multiple levels of review that we've already discussed. The involvement of a large number of people makes for much better examinations than any one person could ever develop, but it also makes careful review essential.

The third and final safeguard I'd like to mention is the system of security procedures. Again, with a large number of people involved in development of the examinations, it's essential to have careful security procedures to safeguard the confidentiality of the questions. The main purpose of the security measures is to do everything possible to provide all candidates with equal opportunity to demonstrate their knowledge.

HOW TO PASS EXAMS

MR. LINDEN N. COLE: I feel that I am qualified to speak on the subject of failure on the actuarial exams. After a point in my exams, which I will not identify for you, I never passed another exam the first time. It took me three times to pass the last exam for my Fellowship. I finally got my Fellowship by changing my study method for that last exam. That is a clue to what is going to come later on in this presentation.

Once in a while, a student will ask me for advice about his or her problems on the exams. It is usually about Course 200, which is a radical change from the mathematical exams. A couple of people claim they finally passed that exam by following the advice that I gave them. Frankly, I think they changed their study method, and that was the real reason. By the way, the subject of this session is the graders' concerns. Graders are concerned that your papers are not as good as they would like them to be. If we can improve the quality of your papers, the graders are going to be very grateful.

MATHEMATICAL EXAMS

I don't have much to say about the mathematical exams because they don't seem to be the ones that give us trouble. Everybody says you should understand the theory and do lots of problems, and I don't have anything better than that to suggest. By the way, working lots of problems is not a bad educational method. You internalize what's happening with the theory by working lots of problems.

VERBAL EXAMS – A TROUBLE SPOT

Verbal exams are our trouble spots, however. In particular, the shock of going from the mathematical exams to Course 200 is severe. We will concentrate on the Fellowship exams, the verbal exams. Most of my suggestions relate to written-answer questions, rather than multiple choice. You can figure out how to apply the ideas to multiple-choice questions.

I'd like to tell a pertinent story here. My college roommate visited us once, after we were both married. They had two kids, a four-year-old boy and two-year-old girl. I reasoned that a four-year-old boy cooped up in an apartment was not a good idea, so we'd better get him out of the apartment. We had a beautiful park across the street, so I said to my friend, "Let's take your boy and spend an hour in the park." There was a large pond over there, and we told Keith that he might see some ducks. I knew we could throw rocks, too, but I didn't mention that with his mother right there. We talked about the possibility of seeing some ducks on the pond. His mother said, "Now Keith, you should go out for a walk because you might see some

ducks." Keith got the picture that he had better get out with us on this walk and out we went.

We had a good time! It was a beautiful day. We let Keith have some space. He threw rocks. One of the Prudential buildings had been torn down, and they had put the old stone lions from the top of the building right down by the lake and you could climb up on them. They are ten feet high and Keith did all of that. When we got back to the apartment, his mother said, "Keith, what did you see?" This four-year-old boy paused for a moment, then he said, "We saw the ducks."

I thought that was interesting. We hadn't seen any ducks. I conclude that this boy has a bright future. He has learned one of life's valuable lessons. The lesson is, when someone in authority asks you a question, give him or her the answer he or she wants! Does that apply in grade school? Yes. Does it apply in graduate school with your advisor for your thesis? Yes. Does it apply with your boss? Yes. Does it apply on taking exams? Especially yes. With exams, there is no other way to do it. It is inherent in any exam system. To succeed, give the examiners the answers they want.

EXAM-TAKING STRATEGIES

Now let's get back to exam-taking strategies. If you're faced with a written answer exam, which of the following works the best? This is a multiple choice question. Your choices are Method A, Method B, and Method C.

Method A -- The memory tape

Method A is to play a memory tape. Somewhere in your brain you must have stored something on that general subject area. Find it and spill it out onto the paper. Based on my experience, this is the most common method of answering written-answer questions.

Method B -- Throw darts blindfolded

Method B is to write down as many things as you can think of in the subject area. Pile up those facts. It's like throwing darts blindfolded. You'll eventually hit something if you keep throwing.

Method C -- Answer the questions

Method C is to answer the question the examiners asked. I have to concede that sometimes Methods A and C are the same. If they ask you for a list from page 159, give them the list from page 159. Tell your mother you saw the ducks.

But what if it isn't? Wouldn't it be smart to take 15 seconds before you start writing and ask yourself what the examiners are really asking? And then take 30 seconds more and organize your answer to that question. Then start writing. When I first started grading, I was amazed at how few people answered the question we asked. It looked to me as though they hadn't taken the time to think about what we were asking. I was also amazed at how few sentences it would have taken to get full credit, if all of the sentences were directly aimed at the heart of the question. That will be our theme for a while. If you're taking notes, write this down:

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The people who get the best grades answer the questions that were asked. Granted, this is not as easy as it sounds. But this is our goal.

Our next task is to figure out how to study for months, and become prepared to answer the questions the examiners ask. This is not the same as recording mental memory tapes in your mind. It is also not the same as memorizing tons of facts in the general subject area. Those methods are not efficient, and we want to optimize our study time. We want to study more smartly. That is the objective of this exercise.

Unfortunately, there will be some questions that ask for a memory dump. If that's what they want, give it to them, tell them you saw the ducks, and go on to the next question. Some memory work will be necessary in preparing for a Fellowship exam.

ILLUSTRATIVE SOLUTIONS – ARE THEY USEFUL?

Illustrative solutions, old style, are of some use if you recognize what they are. They are absolutely super perfect answers. They are the answers of Superman or Wonder Woman. Nobody is saying that you should have written that much or been that comprehensive. The point is that they are supposed to be aimed at the heart of the question that was asked. You can check yourself by looking at the question, sketching out the main points to the answer, and then comparing your points to the perfect answer to see if you're on target. Your answer doesn't have to be as complete as that. You can't even write that much information in the allotted time. But that is not what they are intended to illustrate. They are provided to show you what the central points of the question were.

New style illustrative solutions are coming soon. They are going to be based on very good papers that received full credit. They will not be as comprehensive. They will not be super perfect. Read the warning on the cover page so you see what the difference is. Make sure you know what you're dealing with. Then they can be of some use to you.

OUR OBJECTIVE: TO BE PREPARED TO ANSWER THE QUESTIONS ASKED

Now, what is the best way to prepare, if what we want to do is to be ready to answer the questions? I will now tell you a big secret.

PREPARATION METHODS: THERE ARE MORE THAN ONE!

There are many preparation methods. Does that come as news to you? Some methods are more efficient than others, which is the point. What you want to do is to study more smartly, so you won't have to study longer.

YOUR JOB: FIND THE ONE THAT WORKS FOR YOU

Your job in analyzing study methods is to find the one that works for you. To be successful in the actuarial exams, I repeat, you need to find a study method that works for you.

HOW I FOUND A STUDY METHOD AND RECEIVED MY FSA

My old method was to read the material over and over, and outline it. The outlining helped to fix the material in my head. That is what we are trying to do, of course, to fix the material in our heads. Outlining also helps you focus on the central points,

which is good. You are working at the heart of the subject matter instead of just piling up a lot of words. But it wasn't enough to get me through the last Fellowship exam, even on the second try. After I failed that exam two times in a row, and had to psych myself up to face this wretched study material for the third time, I decided that I had better come up with something new, or I wasn't going to make it!

What I did was a memory exercise. I put the entire Course of Reading for this six-hour exam on five by eight memory cards. They were mostly short outlines or lists. My plan was to go through all of those and try to memorize them. There were no multiple-choice questions on this exam, by the way. It took me two months of hard work to prepare these cards. I completed the work, but what happened was different from what I expected. The activity of preparing the cards had lodged the stuff in my head. I had not guessed that was going to happen at all. But it worked.

I made one tactical mistake. I reviewed all of the cards once, two weeks ahead of the exam, because I planned to pull the ones out that were giving me trouble and focus on those for the final two weeks. That was a mistake. I was right on top of the material after I went through all those cards two weeks ahead of the exam. If I had taken the exam then, I would have earned a 12. I really had it down. It was creating the cards that had fixed the material in my head. Even two weeks later with my psychology sliding, I was able to pass with a seven. My new study method was better than the old one, and of course, it was something new. Any time you're having trouble, something new is likely to help.

IF I COULD DO IT AGAIN

If I could do it over again, though, I wouldn't do it by preparing memory cards. This is the method I recommend. I would take the Course of Reading section by section. I would look at a section and say to myself, if I was the examiner, what points would I test from this section? What is central to this section and how would I test it? This is not the only study method in existence, but it is one method, and it is the method I describe when people ask for advice. The method has three steps.

Step 1 – Read a Section, and Identify Its Central Points

For example, if you read the section on participating dividends in Black & Skipper, you should pick up the fact that everything hinges on the contribution principle. For any question on individual insurance dividends, you're going to work in the contribution principle somewhere, and build your answer on that. You should pick that up when you are studying. If you miss that, you're missing the central point, and that's a different problem. You have to be able to look at the study material and see what the central points are. I picked that example because it was easy for me (I was in participating insurance for many years). I hope you get the same conclusion from reading that material in Black & Skipper.

Step 2 – Write good questions testing the central points

It takes a little while to get the hang of this. The virtue of it is that you have identified the central issues, and you're creating questions around those issues.

Step 3 – Sketch out good answers to your questions

This is one you might overlook. You should sketch out the answers to your questions. You could even construct a whole practice exam for yourself to take later, if

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you wanted to, to see if you could remember the material. In a study group, you could create questions for each other. There are various things like that you could do. You would have to do both written-answer preparation and multiple choice preparation on Course 200, because you have both kinds of questions.

LEARN HOW TO THINK LIKE AN EXAMINER!

The point of all this is that you are learning to think the way the examiners think. That is all they do when they look at a section. They read the section, looking for the central points. Then they ask how they can write a question to test those points. Finally, they sketch out the answer. You can do that, too, and you will be following the same logic that they do. When you actually get the question on the exam, you are much more likely to see what they are asking.

It might take a little time before you are converted to thinking that way, but the examiners are not trying to trick you, and that's how they create the exam. You are allowed to think that way, too. There is nothing illegal about thinking the way examiners think.

OH DRAT! YOU STILL HAVE TO MEMORIZE KEY LISTS

Unfortunately, you are still going to have to memorize some of those wretched lists, because list questions do appear in exams. Sorry about that.

WHAT IS THE BEST METHOD?

Now remember the startling revelation that there are many study methods. The best study method may not be the one I just sketched out. **The best one is the one that works for you.** You want to search until you find it. If you don't like the one I gave, check with teachers, check with friends from college, or check with somebody who is successful. Find out what they do. Poke around until you find something that works for you. You can optimize your exam preparation skills.

FOR A TROUBLESOME EXAM: TRY A DIFFERENT STUDY METHOD

Now what do you do if you get stuck on an exam? People call with this problem occasionally. I don't always know what the hang-up is, and in that sense it is hard to advise people. But whatever else you do, change study methods. The one you're using isn't working. Even if you were using the one I just advised, change it. If it doesn't work, try something else. What you are trying to do is to get the material in your head, and any change helps when you're dealing with the same material over again.

FOR A TROUBLESOME EXAM: TAKE A DIFFERENT EXAM NEXT

Another strategy is to take a different exam next time, to get the feeling of success again and regain momentum. Afterwards, you can come back and pick up the troublesome exam. I had a friend who couldn't pass Course 100 because he started on the exams in his mid 20s. He just couldn't get that first exam. So, he finally switched to Part 2 and passed it. Then he passed Part 3 the first time, Part 4 the first time, and Part 5 the first time. After all that, he went back to Part 1 and sailed right through it. The success had to do with psychological momentum somehow. Find an exam where you're an expert already, where you know something about the subject. Once you get that taste of success again, you can go back and do better on the old one. We hope.

COURSES 200, 210, AND 220 REQUIRE DIFFERENT PREPARATION METHODS FROM MATHEMATICAL EXAMS

I want to reemphasize the challenge involved in the transition from the mathematical exams to the Core exams, especially Course 200. This is a new challenge. I heard someone say that it is not unrelated to some challenges you will have later on the job. If you have a complex problem and have to make a presentation to the CEO or a client, you may well be faced with a mass of material that you have to get into your head. You might be allowed to come in with an outline, but you had better have the mass of material organized in your mind. Thus, this skill is not without value later on in your career. But don't treat this material in the same way as mathematical material. This is a different challenge. You need different study methods.

By the way, the shorter Fellowship exams are no picnic either.

PLAYING "COMPARE AND CONTRAST" GAMES IS A GOOD STUDY TECHNIQUE IN ANY STUDY METHOD

Of course, there are different things you can do in any study method. Playing compare and contrast games is a good exercise. For one thing, it is good education. For another, it helps you remember the material. Any time when the course of reading covers both the U.S. and the Canadian system, write them down and compare them. Examiners like to write questions on this for one thing. For another thing, it helps you remember both to have both systems structured and organized in your mind. You can have participating insurance compared to nonparticipating. You can have group compared to individual. This is a good exercise whatever your overall method is, and I recommend it. Check with your friends for other ideas that work for them.

DURING THE EXAM: A CASE STUDY

Now I would like to introduce a little case study. We are going to talk about junk bonds. A question from a recent exam asked about junk bonds, which had gone into default, and the question was, "What is the effect on your life insurance company annual statement?" Let's talk about how we should answer. This will illustrate some fundamental principles of exam-taking strategy.

EXTRANEOUS POINTS

Do you get credits for writing down extraneous points? Shall we write down the history of junk bonds in our case study? Junk bonds started with, was it Michael Milken? Shall we talk about Executive Life and how Milken went to jail and the whole story? I don't think that's an effective use of your exam time. The examiners did not ask for the history of junk bonds. They asked for the effect of the default on the annual statement. This is an annual statement question. Let's not waste exam time with extraneous points.

PERIPHERAL POINTS

What about peripheral points? For example, should we write down a definition of junk bonds? I tried this on an E&E group and they split. Some of them said you should put it in, and it would get a little credit. Some said they wouldn't give any credit. This is a borderline situation. I would do it if I was answering this question. I would define junk bonds in a sentence or two. It will probably be worth something. But it is not central to the question. The question is an annual statement question.

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It's up to you whether you spend time on that or not. What I am saying is that even if you can put down a lot of peripheral points, each one gets you very little credit. It is not an efficient use of your exam time. That is why it is so important at the outset to figure out what the examiners are asking before you start to answer, and to emphasize the central points in your answer.

Here is an analogy about points which are central to the question, and peripheral points. It is a U.S. football analogy. Central points are like touchdowns and peripheral points are like field goals (at most). Central points, our "touchdowns," give six or seven points each. Peripheral points, our field goals, give no more than three points each. In your short exam time, you are trying to pile up points. You want to score touchdowns, which is why you want to hit the center of the question. It is very hard to kick enough field goals to get full credit for a question. That's the point.

HOW LONG AN ANSWER SHOULD YOU WRITE?

There are three minutes per exam point. A four-point question gives you 12 minutes. Whoever set the question expected you to be able to write a complete answer, complete enough to get full credit, in 12 minutes. This is a "tell your mother you saw the ducks" kind of thing. Don't write a 20-minute answer. That is almost certainly eight minutes more than you need. This analysis assumes that you have learned to block out your time allocations on the exam. Still, once in a while somebody will write and say, "I spent too much time on the first question, and I certainly hope you'll give me extra credit for all the good things I put down. I admit that I had to skip the last question altogether." This is not good exam strategy!

WHAT ABOUT A QUESTION YOU DON'T KNOW MUCH ABOUT?

If the choice is between spending extra time on a question where you're an expert, or spending that time on a question you really aren't prepared for, which one should you choose? The answer is that you should spend your time on the one you don't know much about. Here's the reasoning. Suppose you were totally prepared for a five-point question. You know it cold. It's virtually certain that you will have achieved your full five points in the 15 minutes if you organized your answer carefully and answered the question asked. How much more are you going to get if you write 15 minutes more? Nothing. You already have the five points. We don't give extra points beyond that.

What if there is another question that you don't know much about? Well, after you read the question, you can usually guess a little about the general area. For example, on our junk bond question a while ago, you can define junk bonds. You could probably figure out that, if the bond defaulted, you're not going to earn interest that affects the annual statement. You could probably figure out that you're going to have to write the bond down, and that causes a capital loss. That might be worth, if you're really lucky, two exam points out of five. It would probably be worth one, which could be the difference between a grade of five and a grade of six. So at least you've got something out of your time. But if you spend your time on the question where you already have a perfect answer, you will get nothing extra for it. It has always been considered good exam strategy to write down what you do know on a question where you don't know much. This is a better use of your time than spending extra time polishing a question where you were an expert.

THE BOTTOM LINE: THINK ABOUT EXAM STRATEGIES, OF COURSE, BUT FIND THE STUDY METHOD THAT WORKS FOR YOU

It never crossed my mind when I was taking exams, until that last exam, that there might be more than one way to study for the exams. That was a mistake on my part. I'm sorry nobody suggested that I try something different, because I might have made it through faster. Now you've been tipped off. There is more than one study method. Find the one that works for you. And if the quality of student answers improves, I believe I can state categorically, we will pass more candidates. Everyone would like to see this happen, and we'd like to see all of you at the Fellowship Admissions Course very soon.

HOW TO ANSWER AN ESSAY QUESTION

MR. GOLDMAN: I'm going to talk about the grading process. But I will repeat some of the items that Linden touched on, not only because they're very important, but also because the method he outlined for studying the exams is exactly the approach that we take when we're trying to grade them. In fact, one of the training suggestions we give item writers is to tell them to read the syllabus completely, and then think about what it is that they do at work. We ask them to think about practical situations, and how the syllabus could be applied in a practical way. That's what I advise you to do while you are studying. And you'll see that the way we grade the exams is analogous to the methodology Linden described for writing a good exam.

It is worth repeating what Linden said: Graders come away thinking that most of the candidates didn't answer the question. So, understand what is being asked. Look for clues in the preamble of the question. For example, if the question concerns a small insurance company selling life insurance to farmers in Saskatchewan, then we are probably not talking about a company that is going into variable life insurance. Or in the U.S., given a company selling health insurance in rural America, managed medical is probably not where it is headed in the near future.

The wording is meant to be straightforward. It is reviewed many times. We are not trying to be tricky. We really do not look for footnotes. There is enough material we ask you to read that we do not have to go to the footnotes to ask questions.

ORGANIZE YOUR ANSWER

Organize your thoughts, and write clearly. Just think, if you were going to sit down to grade 300 papers, you would appreciate it if you could read the paper, and you would probably feel a little better disposed when grading the paper if, in fact, you could read it.

Not only should you organize your thoughts, but it is helpful to organize your answer on the piece of paper. Leave enough white space. Label the parts of the answer, especially if you do not do them in order. There is lots of paper. We will give you as much paper as you need.

MAKE YOUR ANSWER RELEVANT

Answer all the parts of the question. Make sure your answer is complete. Outline form is okay, as long as the meaning is clear. A popular misconception is that one needs to mention only the key word to get full credit. Linden's advice was good: If you do not know the full answer to the question, you should write down something

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that you do know. But just listing a key word without any explanation is not going to earn you any points, unless it is simply a question that is asking for a list.

An example of a list question is: Identify the major causes of the increase in health care costs in the U.S. From the key word one recognizes that this is a list question. It is okay to list: inflation, utilization, aging, and technology. It is probably helpful to say something a little bit more than just technology, such as the cost of new equipment or the increase in staff and education required to use new technology.

But consider a different question such as: Discuss how Hillary Rodham Clinton's proposed health care reform package counteracts the effects of health care trends? Just writing down inflation, utilization, aging, and technology is clearly not going to earn you any points.

Include pertinent points even if they seem obvious. Exclude extraneous or trivial facts. For the question on Clinton's health care reform, if you say health care is an important issue for President Clinton, that's a trivial fact and not worth mentioning. An extraneous fact would be the statement that Hillary Rodham Clinton is the first First Lady to lead such a task force. These statements are true, but not relevant.

A pertinent fact would be that health care reform has to sweep in Medicare, Medicaid, automobile and workers' compensation coverages in order to have an effect on trend.

POINT VALUE GUIDES LENGTH

Use the point value of the question and what I'll call the "question verb" to gauge the length and depth of the expected response. Suppose you are given a 3-point question from exam 200: outline the features of the Old Age, Survivors, and Disability (OASDI) program. Or I could make it the Canadian Pension Plan Program. In your answer to the latter question, you should not write about the Quebec Pension Plan Program, and if you are answering the OASDI question, there is no need to discuss Medicare, except to say that many people think it is part of OASDI. And you certainly do not have to go into details like the reduction factor for survivorship benefits that begin at age 62 or the group of people born between 1917-19 who get less of a benefit than people born before or after. It is just a three-point question.

QUESTION VERBS GUIDE LENGTH AND DEPTH

In addition to the point value, the question verb is chosen to indicate the type of response we are looking for. These verbs have different meanings and imply different levels of response.

Question Verbs (in increasing order of depth)

- Identify. List. Indicate.
- Define.
- Outline. Describe briefly.
- Calculate. Show. Describe.
- Discuss. Compare.
- Recommend. Evaluate.
- Analyze.

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"Identify," "list," and "indicate" require you to just write down the items in enough detail to be clear. "Define" calls for a brief explanation of the item. "Outline" or "describe briefly" asks you for the main points. "Calculate," "show," or "describe" asks for more details of the item or for a complete explanation.

"Discuss" means to give a very full treatment. You should talk about pluses and minuses or advantages and disadvantages. We do not feel that we have to say, "discuss the advantages or disadvantages."

As you begin taking courses at the 400 and 500 levels, you will see fewer and fewer questions that have the verbs in the beginning part of the list. We are expecting that you have a greater depth of understanding of the track material in a 400 or 500-level course. There is a bit of a disconnect here, because if we look at who is taking the 500-level exams, there are many individuals who, maybe, have one exam to go before Associateship, and they want to fill in their time with an easy-to-read 500-level course. Well, the syllabus may be easy to read, but we do expect a greater depth of understanding.

Take, for example, that question I posed about Hillary Rodham Clinton's proposal and how it counteracts the effects of health care trend. While there would certainly be something to read on the syllabus about Clinton's recommendation, there would probably be nothing in the material about health care trend. It would be assumed that you would have learned the causes of trend in earlier exams, and you would be expected to put the two concepts together yourself.

GRADING PROCESS

The grading process basically follows the concepts we have been discussing. First, let me emphasize that it is completely anonymous. Only candidate numbers are used throughout the exam process.

We continue to look at questions throughout the process to make sure there are no defective ones. If you have any concerns after the exam that there may have been a mistake, or that we asked something that was not in the syllabus, please bring it to our attention. We will investigate the concerns raised.

There are about 500 Fellows working in the E&E system. The majority of these grade the exams. Usually at least one grader for a given question is the individual who had the initial idea for the question. An integral part of creating an essay question is creating a grading outline that goes with it. Both the question and outline are first reviewed by other examination committee members. They are then again reviewed by the officers of the examination committee and certain questions are chosen for the examination. Even if a question is accepted, it is usually modified or combined with another question. It will then come to central review where the questions and grading outlines are reviewed by the general officers of the E&E system.

The grading outline is really the crucial piece so, after central review, the original question writer is asked to construct a final grading outline that matches the final form of the question. It has to be signed off by the examination chairperson and the examination general officer. And there may be more than one grading outline per

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question. If the question asked you to make a recommendation or an evaluation, there could be more than one correct answer.

Finally the outline is tested by using it to grade papers. As we find pertinent ideas that were not thought of beforehand, they are added to the outline. The weighing of items could also be changed.

WHAT GRADERS ARE LOOKING FOR

The grader is trying to see if the candidate has demonstrated specific and general overall understanding of the material. By and large, if one is grading 300 papers, there is a mechanical aspect to it. But in each paper, the grader is basically looking at how well the candidate answered the question overall. And we do not leave it to just one grader. When all the papers are graded the first time, we take a look at the distribution of scores. There are individuals who are going to clearly pass the examination with scores of eight, nine, ten or maybe even a high seven. And there are individuals that are clearly going to score zero, one, or two. Except for these high and low scorers, all the other candidates' examinations are graded a second time, in their entirety.

Our purpose is to determine which candidates have demonstrated a minimum adequate knowledge of the Course of Reading. Therefore, what we care about, and so do you, is where the line is drawn for a "six." The lowest six. It is not that important for us to determine who is a "ten," and who is a "nine." This is not an SAT exam where one must maintain consistency from session to session on the full spectrum of scores from 200-800. We aim for consistency of the passing standard represented by the pass mark.

GRADING OUTLINE

The construction of the grading outline basically follows Linder's studying methodology. We break down the answer into major topics. The major topics are supported by submain points, and submain points are comprised of minor points. Let's look at an example.

(8 Points) With respect to President Clinton's health-care-reform plan:

- (a) Outline the features of the plan affecting
 - (i) Coverage
 - (ii) Health Care Delivery Systems
 - (iii) Administration
 - (iv) Financing
- (b) Discuss the effects of the plan on the causes of health care trend.

Grading Outline

Grading Points	(a) Outline of health-care-reform plan
70 Max	(i) Coverage
42 Key (*)	

2

* guaranteed for all citizens and legal residents

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- 18 Max 2 * nationally defined, comprehensive benefit package
 2 * hospital, outpatient, physician, and diagnostic benefits that are typically found in employers' major medical or HMO plans
 2 * preventive care including dental services for children
 1 • family planning and pregnancy-related services
 1 • mental health and substance abuse
 1 each • vision, hearing, hospice, medical equipment, health education classes
 2 * long term care – new federally-financed program for home and community-based services. Favorable tax treatment for LTC insurance
 2 * prescription drugs – new Medicare benefit (\$250 deductible, 20% up to \$1000)
 1 • no lifetime maximum except for orthodontia
 3 Max • out-of-pocket costs
 • fee-for-service plan: deductible of 200/400, 20% up to \$1,500/\$3,000 separate deductibles for prescription drugs and mental health
 lower cost sharing for managed care plans; e.g., \$10 copayment per physician visit, no deductible, no coinsurance for HMO's.
 1 • no balance billing
 1 • individuals can purchase additional coverage

(ii) Health Care Delivery Systems

- 5 Max 2 * regional Health Care Alliances (HCA)
 1 • monitor costs and premium
 1 • monitor quality
 1 • choose Accountable Health Plans (AHP)
 2 * employers with fewer than 5,000 employees must participate in HCA
 2 * employers with 5,000 or more employees have option of contracting directly
 2 * HCA to offer choice of fee-for-service, HMO, and combination plans as AHPs.
 2 Max, 1 * * AHPs may be formed by insurers, HMOs or providers. They will be chosen based on cost and quality. Community rating will eventually apply to all HCA participants
 1 • Medicaid recipients in HCA
 1 • states have option of integrating their Medicare enrollees in HCA
 1 • workers' compensation and automobile health coverages will be provided through HCA
 1 • all citizens and legal residents have access to services
 1 • illegal immigrants have access to emergency services

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		(iii)	Administration
5 Max	2	*	National Health Board
	2		* oversee system – see that states comply
	2		* set national health budget
	1		• seven members appointed by President with advice and consent of Senate
2			* states must establish regional HCAs in compliance with federal requirements
1			• states ensure that access to care is universal
1			• begin implementation by 1/1/95. Have in place by 1/1/97
1			• Health & Human Services can withhold federal appropriations to noncomplying states
1			• Treasury can impose a payroll tax on employers in non-complying states
		(iv)	Financing
3 Max,	2*		* savings from Medicare – slow growth to CPI plus aging by 2000
3 Max,	2*		* savings from Medicaid
			• reduced payments to physicians, hospitals, and labs
			• increased coinsurance for lab and home health
3 Max,	2*		* increased cigarette tax (\$1 per pack)
2			• increased income tax revenue from employers (from lower health costs) and employees {caps on deductibility of health care payments}
2			• employers with under 5,000 employees
			* pay at least 80% of weighted-average HCA premium for active employees (pro rata based on 30 hours per week)
2			* capped at 7.9% of payroll
4 Max,	2*		* subsidies of up to 3.4% for employers with 50 or fewer employees if average wage is less than \$24,000/year.
1			• average premium of \$1,800/\$4,200 per year
1			• self-employed and unemployed responsible for entire premium
1			• subsidies for low-income persons
1			• employers to pay 20% of costs for retirees not eligible for Medicare
<u>Grading Points</u>		(b)	<u>Effects on Trend</u>
70 Max			
42 Key (*)			
			1. Inflation
6 Max,	3*		* cap payments to doctors & hospitals - especially Medicare and Medicaid
6 Max,	3*		* global budgeting – limit to CPI + aging + 1.5%
3			* Health alliances to foster greater competition

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- | | | |
|----------------|----|--|
| 3 | | * limit growth of insurance premiums if competition doesn't work |
| 4 | | * likely result: overall costs will continue to increase but at a decreasing rate |
| 3 | | • CPI not a good measure of health inflation. Even the medical CPI does not include insurance premiums or payments by third parties to hospitals and doctors |
| 3 | 3* | • increased use of primary care physicians will lower costs |
| 3 | | • less care in hospital emergency room and less uncompensated care – will lower costs |
| 6 Max, | 3 | * lower administrative costs |
| | 1 | • no commissions |
| | 1 | • unique claim form |
| | 1 | • electronic claim submission and payment |
| | 1 | • fewer plans for providers to deal with |
| | 1 | • no balance billing |
| 2. Utilization | | |
| 2 | 3* | * monitored by AHPs – tighter control |
| 2 | | * referrals controlled by gatekeepers |
| 2 | | • no balance billing or bundling of services |
| 3 | | * quality measurements |
| 5 Max, | 3* | * more widespread coverage of drugs, preventative care, and preexisting conditions will tend to increase utilization. The theory is that major illnesses will be prevented or moderated, and thus, overall medical expenses will be lower. |
| 4 | | * costs will shift – healthy and young individuals will pay more |
| 2 Max | | 3. Aging |
| | | • some recent evidence that costs do not increase automatically with age |
| | | • preventative care and emphasis on wellness will help reduce costs associated with aging |
| | | • obviously, reform will not slow down the aging process |
| | | 4. Technology |
| | 1 | • will continue to be funded |
| 4 Max, | 2* | * cost control will come from limits on the number of providers using new technology, provider self-referrals, and fewer tests |
| 3 Max, | 2* | * however, unit cost and intensity will continue to increase |
| | | 5. Fraud |
| 3 Max | | • increased crackdown |

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- 6. Malpractice
 - 2 * alternative dispute resolution
 - 1 • possible limit on size of awards or transfer of liability to AHPs
 - 2 * limit on attorneys' fees
- 7. New Diseases
 - 3 Max • better case management by AHPs

DISCUSSION OF GRADING OUTLINE

There are obviously two main topics to address: Clinton's health care reform package and its effects on health care trend. The grading outline is set up in such a way that one needs to address both topics fully in order to obtain full credit for the question. There are 70 grading points allotted to each topic. There is more to write about the description of the health care plan than about its effects on trend, but the trend piece calls for a little bit more thought.

Within the first topic, there are four subtopics. In order to obtain full credit for the outline of the health care plan, one needs to mention the key points under all four subtopics. However, you do not have to place the key points under the exact same subtopics as the grading outline. Within each of the subtopics, there are a number of facts that could be mentioned. But, if you know everything there is to know about three of the topics and nothing about, say, administration, then you will only obtain 64 grading points on the first topic.

Basically, the grader is looking to see whether or not you have shown enough information about each of these topics to be awarded the maximum grading points. And, if you have written a book on coverage, you are not going to receive any more than the maximum points for that part of the question. For the second topic, the grader has listed seven causes of health care trend that could be addressed. Unlike the first topic, however, it is possible to receive the maximum 20 grading points even if one doesn't address all the subtopics. For example, if fraud and new diseases were not discussed, one could still obtain the maximum number of points because these subtopics would be considered to be minor ones.

SCORING

To receive the full eight examination points for this question, one does not need to obtain all the grading points. The grading outline is like the illustrative solution that Linden talked about. It includes everything that we can think of that a candidate can write that is pertinent to the question. We do not expect any candidate to mention all items. In this instance, we assume that the grader and examination officers have concluded that 140 marking points would be sufficient for an individual to receive full credit for this question.

For candidates scoring fewer than 140 marking points, they receive a pro rata portion of the eight examination points based on the 140-point scale. Thus, a candidate scoring 100 marking points would receive 5.7 examination points for this question. Usually, the only questions for which we expect candidates to obtain all marking points for full credit are calculation-type questions or very short questions.

Now how do we determine the number of points that we should use to give full credit for a question? Actually, as I said earlier, that is not our main concern. We are focused on what is minimum adequate knowledge for a given question. Ideally, a score of 60% would indicate minimum adequate knowledge, just like in school where 60% was usually considered passing and below 60% was failing. If an individual had only minimum adequate knowledge on each question, the perfect exam would award the candidate 60% of the exam points on each question, and, thus, a total score of 60% for the entire exam. The grading outline above indicates the key points that show minimum adequate knowledge. There are 84 such points, and $84/.60$ equals 140. Not all grading outlines work out exactly this way, but this is the guideline we are shooting for.

PREVIOUS RECORD ARTICLE

Much of what I've been discussing can be found in an earlier article by Curtis Huntington (*Record*, Volume 11, No. 3). However, there are three statements in that article that no longer reflect the way we grade examinations. First, although it is important to organize your answer and to write clearly, no quality points are awarded for a very well-organized, articulate answer (Page 1306). Second, scores on individual questions are not curved (Page 1308).

Third, no credit is awarded for conflicting statements made in an answer. If somewhere in your response you say that X is true and a few sentences later you say that X is false, then you do not receive any points for either statement. It would be clear that the candidate does not know which answer is correct, so no points would be given (Page 1312).

GRADING OUTLINE AND THE SYLLABUS

I'd like to make a comment here about the relationship between grading outline and the syllabus. Answering the question according to the syllabus would always be considered correct. If you know additional information that is not on the syllabus (for example, some new law has passed since the syllabus was finalized) and it is pertinent to the question, by all means, include it in your answer. That would also be considered to be correct even if it is different from what is contained in the syllabus. But, if you didn't know that the new law had passed and you answer the question according to the syllabus, that is okay as well.

PASS MARKS

Once all the papers are graded, the pass mark is determined. As stated in the catalog, "The purpose of the exams are to identify those candidates who demonstrate adequate knowledge of the syllabus, based on standards that are formulated and applied consistently from year to year."

The examinations are not marked on a curve. It would have made my life a lot easier if they were. When I was examinations chairperson, I spent a tremendous amount of time working with other committee members to determine pass marks on each of the 50 or so examinations that were given. It would be very easy to mark on a curve because then one could just take the results, normalize them, and apply a cut-off point to determine who passes and fails. Nor do we use a fixed percentage to set the pass mark. Certainly, if you had looked at the pass lists that have been published, the pass percentages on any one exam do vary, sometimes considerably.

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Candidates are not in competition with one another. We are trying to see if a candidate has demonstrated enough knowledge to pass. And, if 90% of you have so demonstrated that, then 90% will pass. And I can remember one instance where 90% did pass. Of course, there were only 11 people taking that examination.

What we try to do is determine the relative preparedness of the candidate pool and the relative difficulty of the examination in comparison with prior pools and prior examinations. The data are reviewed by many people: examination officers, the Society staff, and the examination general officers. And what do we look for? We use the data from the examination and the experience of the individuals who developed, marked, and reviewed the examinations to determine whether this exam was more or less difficult than prior ones.

One indicator of difficulty is the results of the top 5% or 10% of the candidates. If one assumes that the candidate pool from year to year is comparable, then if the top 5-10% had great difficulty with the examination compared to prior years, this may indicate that the current exam was more difficult, but not always.

One could also compare similar exams. For example, on exam 380 one can study the scores of those who have taken both 380 and 220. Since 220 is a Core examination that is taken by a large number of individuals, if those who scored very well on 220 in a prior sitting did relatively poorly on the current 380, this might indicate that 380 was a difficult examination.

The point here is that there is no automatic process for determining pass marks. We try to follow two basic principles: Determine a score that shows minimum adequate knowledge and apply standards that are consistent from one examination session to another.

FROM THE FLOOR: Can you have points taken away for putting down information that you thought was correct but was not correct?

MR. GOLDMAN: I figured that question would come up. The answer is no, we do not take away points for saying something that is incorrect. But if you say something that is incorrect, which conflicts with something else that you wrote that was correct, then, as I said earlier, you would receive no points for either statement.

MR. CAMPBELL: You can think of the scoring system as starting from zero and building up rather than starting from full credit and deducting. So, if you say something that is not true then it does not contribute to your score. It doesn't help you obtain a higher score, but it does not cause a subtraction.

MR. GOLDMAN: There are parts of the grading outline where there is some subjectivity. For example, the grader may be allowed to award up to three points for discussion of some topic. If a candidate wrote statements that were untrue, then the grader would tend to think that you did not have complete knowledge of that topic.

FROM THE FLOOR: Could you comment briefly on how the Education and Examination Committee is balancing asking questions with a lot of memorization as opposed to questions that require more thought?

MR. GOLDMAN: Well, there is nothing written down that is definitive. One of the things that we do in creating an examination is look at the material and determine what is important. We make sure that the examinations cover the entire syllabus with the appropriate amount of weight given to each topic within the syllabus. The weight is not necessarily a page count, but that is part of it. We also aim to have a mix of questions. We want to test various cognitive skills. Can you synthesize the material from more than one place on the syllabus? Can you do an evaluation of material? Do you know some basic facts? If it is a 200-level examination, then we are probably going to be looking to see if you know more facts than whether you can apply the material to practical situations. On the other hand, on a 400- or 500-level examination, we expect that most of the questions would ask you to apply the facts to hypothetical situations. And if we ask a question that calls for an evaluation, then we expect candidates to make one, and justify it, in order to obtain significant credit for the questions. Is that responsive to your questions? There is no cookbook to creating an examination.

FROM THE FLOOR: It is my understanding that the British Institute returns some of the exams to candidates so that candidates have an understanding of how examinations were graded. I realize that many more exams are given over here than in Great Britain so that this wouldn't be feasible. But, has any thought been given to perhaps a very limited subset of that? Perhaps looking at a question that a candidate has taken, perhaps fairly early on in the process, just to give the candidate an idea if he or she is moving in the right direction or not?

MR. GOLDMAN: If you are talking about written-answer questions, the graders make no marks on the questions themselves. All the grading is done off to the side. So, if you received your paper back, all you could do is compare it to the model solutions that are published. When an examination has various subparts to it, we do provide information as to your percentile score on each part. Some inferences can be made from that information. Also, if you write a very nice letter to the committee chairperson, that would usually generate a response as to the areas in which you did better versus those in which you did not do as well.

FROM THE FLOOR: I have a couple of questions I'd like comments on. You mentioned that it's good to make comments on exams if you found a question that seemed to be defective or questionable. This is a little hard to do since we don't get to carry the exams out the door with us. I wondered also, I've been in study groups in the past, and we usually prepare a set of questions, each of us. There's usually a group of four or five. And we have a whole series of questions we've worked up for the exams. And we've had a more complete view of the syllabus than I believe most of the people making up questions. Perhaps there's a way of incorporating the questions developed by candidates in the actual exam process, in the next year. And we always look at the questions and say, "Well, here is a really good question from the exam and here's one that seemed a little strange." And so I'm wondering how we make comments and also whether it's possible to involve students' input.

MR. GOLDMAN: With respect to your first question, while you cannot carry out the exams with you, the written-answer questions are available for you to either receive by mail or to pick up the next day. Usually one tends to remember questions that were defective, and, certainly, we urge you to write to us with any concerns that you

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have. With respect to your second point, you assert that candidates may know more about the syllabus than the item writers. That may be true of some candidates and some item writers. Generally, item writers for the Fellowship examinations are individuals who are working in the subject area. One of the things that we emphasize in training item writers is that it is important for them to know the syllabus; it is not enough that they simply work in the area. But it is volunteer work, and we don't give tests to the volunteers to see whether they have really read the syllabus. But you can tell from the questions submitted by the item writers as to who is conscientious. In any event, the final question and grading outlines are thoroughly reviewed and do reflect the syllabus.

MR. CAMPBELL: Your third question had to do with perhaps submitting some exam questions that you've devised. I think it would be fine to do that. I suspect that they wouldn't show up right away. But if you have ideas about areas you're certainly encouraged to communicate with either the Society office or with any of the general officers or anyone else who is in the system. And if you find that you enjoy doing that kind of thing, keep it in mind, and after you've gone to the Fellowship Admissions Course, volunteer. That's exactly where our volunteers come from. We're all people who went through the same thing. We took exams and finished and thought that it might be a way to participate in furthering the profession. And I would encourage all of you to think of doing that as you finish.

MR. GOLDMAN: There are two other reasons for volunteering. One is that you think you can do it better. And number two, it is a really great way to stay abreast of the syllabus. I always assign myself to review the new exams that we have added to the syllabus, particularly, investment and finances. This forces me to read all the material and learn something.

FROM THE FLOOR: In the Casualty Actuarial Society's upper level exams, when candidates pass the exam, they do not get a grade if they pass. The life side doesn't do this. Isn't it possible that when you provide grades, it will lead to a quality index evaluation of actuaries and consequently, a level of competitiveness between actuarial students taking exams?

MR. COLE: Our system has been in place for 100 years. I think we might as well wait until the indexes begin to appear before we change our method. Historically speaking, I would have phrased the question the other way. We give you a grade telling you how well you did if you passed. People are very interested in that. The Casualty Society doesn't, so they ought to defend why they don't give the grade rather than our defending giving them. I've never heard anybody work on a quality index. Once in a while you hear complaints about somebody in a recruiting situation, who asks you what grade you got. Grades are entirely your proprietary information. I suppose it was easier to refuse to answer ten years ago, when there were tons of jobs. But we still advise people that they don't have to respond to that question. You can just say right out that you understand you don't have to give that information.

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MR. BERNARD A. BARTELS*: When somebody calls us and asks what kind of grades you've received, we never, absolutely never give out a grade. The only kind of information an employer will ever find out, and it's in writing now, is that so and so has passed these exams. If you flunked it 13 times, they find out you passed. They don't find out that it took you 14 times to do it. They found out that you passed and that's all. So despite the fact that you are aware of and concerned about the kind of grades you may have received, the public only knows that you passed period.

FROM THE FLOOR: I took exam 210 last time, and I was convinced when I came out of that exam that there were errors in the exam. Plus there was an errata page that was handed out. One of the exam questions gave you information that didn't include the salary, but I thought you needed it. So I took the time to write, well you give me this information, I'm going to use it, but I think it should have had the salary. And then my friend came out and said, well that was wrong. You needed the salary information, but she just went ahead and answered the question using the information they gave. Now, did I get extra points for doing that? Did I waste my time doing that? This was a pension mathematical question. Do you have a bunch of people sit down and try to solve these questions before you give the exam? Because I think that's unacceptable.

MR. GOLDMAN: The whole purpose of the review process that Bob described is to catch these types of errors.

MR. COLE: We did blow that one – that caused quite a bit of grief in the office. Staff Actuary Judy Anderson was sweating a lot over that one.

MR. GOLDMAN: I guess we just proved that mistakes do happen despite our reviews. The Examination Committee does review each question in detail, although I do not think that anyone tries to take the examination under examination conditions. Didn't you say that an errata sheet was handed out as well? Although it is not an ideal practice to hand out corrections the day of the examination, in that case the error was caught and you were informed.

FROM THE FLOOR: Did I get extra points for wasting my time, or did my friend get the same points using the information and not commenting on it?

MR. COLE: You probably increased your chance of getting full credit, although you can't get any more than full credit for that question. But, your answer may have alerted us to the fact that we had a problem. You may have been the first person who indicated the problem. I remember the staff actuary came in, all upset, because clearly we were going to have trouble with the question.

FROM THE FLOOR: I was sick about it, too. I mean it makes you doubt yourself during the exam. You just start beginning to think, well, I don't know what I'm doing anymore.

* Mr. Bartels, not a member of the sponsoring organizations, is Registrar for the Society of Actuaries in Schaumburg, Illinois.

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MR. GOLDMAN: Yes, but you did the right thing. On a written-answer question, if you think that it is a defective question, right then and there, you can write a little message. It will be read. You are not going to get extra points for being the one who discovered that it was a defective question. But I think Linden's response is also true. You've helped yourself by showing that you understand the material.

FROM THE FLOOR: I have one more comment I want to make. About seven years ago, I know because this happened to four people at my company, scores were mailed out, and people were ASAs for a day. It turned out that they hadn't changed the score in the system and had kept last year's pass mark in the system. They mailed out the results and then called these people and told them, "Sorry, you got a five, you didn't get a six. You're not an ASA." I think that's unacceptable. Couldn't you have just said, well, this was the passing score last time, let's go ahead and pass this group of people, and let it go this time, instead of making an embarrassment out of the Society in doing that to these people? I think they were given a free exam fee the next time.

MR. COLE: There were 50 or 60 people involved. It was the all-time low in the office as far as morale is concerned. We've now put triple checks on the system. There are three different levels of checks on the pass mark, and then we actually read the computer output out loud for individuals near the pass mark. So we fixed the problem. The situation was totally unacceptable. But, do you want the word to get out, which it will, that some people got their ASA when they didn't really deserve it? Kind of a tainted ASA?

FROM THE FLOOR: It just seems more of a joke to look at the profession and see that you did that, than maybe not even telling anyone and just passing them.

MR. COLE: Well, it was determined and agreed by the people in charge, including the Vice President from the Board, that we just couldn't do that. We had a Federal Express package in everybody's hands by Tuesday. All of Monday was taken up making sure that there was only one error and not more, that we had identified the error correctly, and didn't compound it with another error. You can fix one thing and end up with another error. It was a very bad time. It was completely unacceptable. That's conceded.

MR. GOLDMAN: I will tell you that the Society staff, the actuaries, and nonactuaries are very strong advocates of the candidates. This event happened seven years ago. I hope it never happens again. We do try to give all candidates the benefit of doubt whenever possible. That is certainly what the Society staff tries to do.

MR. COLE: I think if there had been five people, they would have done it. For 500, clearly you can't. There were 50 or 60, and they looked at it and decided it was too many.

FROM THE FLOOR: Given the seeming shift in focus from just a reiteration of facts out onto a page, to a more conceptual answer, has the Society or committee given any thought to having a group of graders grade an entire paper? This might be more so on the upper exams where (1) there are fewer people so it might be logistically easier to do it and (2) the expectations of the depth of knowledge is greater. By

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reading an entire exam, say for example, a ten-credit exam with only five questions, the grader might get a better feel for whether the candidate expresses sufficient knowledge for the material. Instead of just grading one question, one might find on the first question, Well, it's not really the way I would have answered it," but then as you read more questions, you say, "Yes, this seems like this candidate has a sufficient knowledge of the material."

MR. GOLDMAN: I guess it depends upon what exam we're talking about. There was an exam where there was one question that was worth 20 points out of 30. So, the examiners didn't read the whole paper, but they read a good portion of it.

FROM THE FLOOR: That's more really an exception.

MR. GOLDMAN: Yes, that was an exception. But even given a one-hour exam with six questions, they still could be on completely different topics. Even after grading the papers twice, we do tend to look at the papers that are near the pass mark and read them in their entirety. One or two people read them. It is not clear how your suggestion would improve quality if you believe, as some have expressed, that the graders are not as knowledgeable as the candidates are on the whole syllabus. Graders are certainly experts on the questions assigned to them. You certainly have a much better chance if your question is graded by a grader with specific knowledge of the question. So we may actually get a little better result with our current approach, and I think we achieve more consistency in grading, from one exam paper to another.

FROM THE FLOOR: I've got a two-part question, prefaced by another comment from the dirty laundry file. On November 1989, the Graduation exam was the second one that had 15 questions on it. I answered six and left nine blank and passed, and I understand there was a guy who answered five and left ten blank and passed. An exam that difficult is going to cause people to just wildly guess, thinking that they don't have a chance of passing it. In fact, I heard a rumor that someone was able to answer one correctly and guess on the rest, and he passed. Really difficult exams are going to open up circumstances like that to happen. So there's a good call for uniformity instead of year-by-year fluctuation of difficulty.

MR. GOLDMAN: I couldn't agree any more with you on that. Our goal is to obtain exams of consistent difficulty. And they should not be impossibly difficult, either.

FROM THE FLOOR: In an FSA exam with a small group sitting for it, like one of the Canadian exams, how can you separately identify the difficulty of the exam component versus competency of the group component? Second, in 1995 it seems that the pass marks for the 150 and up exams should go way up because people are going to be scrambling to get the ASA before the Core courses are added. Are you going to have a factor that's going to allow for that pass mark to go up?

MR. GOLDMAN: Why do you think the pass mark should go up?

FROM THE FLOOR: There are going to be a lot of individuals taking the exam in order to qualify as ASAs before July 1, 1995.

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MR. GOLDMAN: If this deadline is going to focus people's attention on learning the material, then those who demonstrate adequate knowledge will pass. The pass mark will not be raised artificially. When there are a small number of people taking the exam, it is clearly harder to separate relative preparedness and difficulty. There are some Canadian exams where there is a fairly substantial overlap of questions with the analogous U.S. exams. In this situation one can pool like questions and make some inferences. What we would do in an exam that is purely Canadian, and taken by a small number of people, is to try to match it with prior exams. We'd go question by question to determine whether we think it was more difficult and look at results compared to prior sittings. The objective is to level out year-to-year fluctuations in examination difficulty. If we felt that we could make up exams that had consistent difficulty, then we would just set the pass level to be, say, 60%. At 60% and greater, then you pass, otherwise you fail. Our concern right now is that the exams are not of uniform difficulty.

FROM THE FLOOR: Having nearly finished the Fellowship exams, I've kind of backed into some of the information that you've presented, and I found it helpful in passing the Fellowship exams. Have you considered putting an actual grading outline into introductory study notes, or perhaps creating a general study note that would let new students have some idea of what is expected in answering a question?

MR. GOLDMAN: Actually, one of the purposes of this session, which is being recorded, is that it will appear in the *Record* and be available to all students. Your suggestion about including the *Record* as a study note is a good one.

FROM THE FLOOR: One thing I might add is that you referenced the 1985 *RSA* article. I knew nothing about that until now, and I don't think anybody else probably did either.

MR. COLE: That's been referenced in the catalog ever since that *RSA* was published.

MR. GOLDMAN: In fact, a lot of what we have said is included in chapter IV of the catalog entitled, "The grading process, pass mark determination, and helpful hints for taking exams." At the end of this chapter was a reference to that article. We ceased referencing it in the 1993 catalog.

FROM THE FLOOR: I noticed in the introductory study notes for 210 for the Fall, that you're getting rid of the triple true/false questions and replacing them with just a single statement with a true/false answer. Is it just on 210?

MR. GOLDMAN: Yes.

FROM THE FLOOR: Is that a trend toward the other exams?

MR. GOLDMAN: If it works.

FROM THE FLOOR: Okay, what's going to be the format of those questions as far as marking, and how do you expect that to let us better show our knowledge of the material?

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MR. COLE: You answer either A or B, don't answer C, D or E, because it's either true (A) or false (B). And it means that you will be able to show your knowledge of each statement asked. On a triple true/false question, one candidate may know two out of three and get the question wrong while another may know zero out of three and mark the same wrong answer. We have not distinguished the knowledge level of the two candidates. Also, item writers will no longer be constrained to devise three statements on every question topic.

MR. GOLDMAN: I believe there's also variable credit going to be given on different kinds of questions. True/false questions won't receive as many points as the typical five-choice question.

Actually, the reason why we made the change was pedagogical. We think that we will gain more information on which individuals understand material. By taking a question that might otherwise be a triple true/false question and making it into three true/false questions, we clearly find out what you know and don't know.

FROM THE FLOOR: You mentioned that time allotments are considered in assigning point values to questions. I was wondering if you'd be a little more specific. For instance, I know a lot of cases in colleges, a professor will sit down and take an exam. Having full knowledge, if he is able to write the answers in 20 minutes, then he would expect a student to write it in an hour. Does anybody on the exam committees ever sit down and try to answer the questions? As a frame of reference, I think, in the last couple of exam sittings, especially on some of the ten-credit exams, the amount of material that's expected to be written has increased, and I am just curious as to whether the examiners actually sit down and take the exams themselves to see if they can write the information they expect of the people in the amount of time allotted?

MR. GOLDMAN: It's a good suggestion. Nobody actually does that. Although, as I said, it is an aspect of the development of the grading outline. The person who develops a grading outline and the people who review the grading outline are to consider the amount of time that will be required to write the expected response. There are probably some situations in which the item writer or reviewer actually goes through the process of writing all that down, and maybe we should do more of that. Writing time is certainly a factor in the point determination. But it's not just writing time either. We do consider about thinking time. At least we try to. I never finished any exam after Part 3, but that's not why we sometimes make the exams too long.

FROM THE FLOOR: What do you do when you write a question that you obviously think is clear, but then you get back two totally separate sets of answers? This past time on course 200, there was a question on pension funding concerning the maximum employer funding level. I talked to a group of people who answered it as to the level of the overall fund, and then I talked to another group of people who answered as to percentage of employee salary. So it was like a microanswer and the macro answer, but the question wasn't at all clear about which you want.

MR. GOLDMAN: If the question is not explicit as what answer is expected, then there could be more than one correct answer allowed for the question.

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FROM THE FLOOR: Okay, so even if you intended one answer, and you started getting a lot on the other, you would count them both as correct?

MR. GOLDMAN: Oh absolutely. Grading outlines are subject to editing even in the process of doing the grading.

FROM THE FLOOR: Just one quick comment that have. I heard one of you mention earlier that you try to keep the candidates in mind as much as you can. I know of several instances where people from our company have written to the Society with comments. These people don't get any kind of response back at all, which makes us wonder whether you're really listening to us, or do you take the comment and file it, you know, in file 13. What do you do with it? I wrote a letter in May, and I wrote explicitly on the bottom, "I look forward to your response and I expect one." And I got one. But at least then I knew somebody read it and somebody took the time to say, "Yes I read it and I don't agree with you," and I didn't figure the person would. But, at least I got my comment out, and someone read it, and that makes me feel like I'm worth something. Whereas, I know people who are no longer going to write to the Society because they don't think that anybody is even reading their letters.

MR. COLE: It's a matter of policy to read all letters and pass them on to the E&E Committee. My suggestion is that, if you know someone who writes and doesn't get an answer, have them follow up. Call Pat Holmberg. She'll find out who's got it and make us sit down and answer it. We do mean to answer our letters, and you should follow up and kick a little bit if you don't get an answer. I'm serious about that. Sometimes I set a difficult letter aside, hoping for an inspiration, which never comes. I don't mind being prodded to dig it out and answer it.

