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Report to ECC from the Board of Examiners

2007 PART III SEMESTER ONE EXAMINATIONS REPORT

(STUDENT VERSION)

Institute of Actuaries of Australia

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SUMMARY

Examination Administration

The Semester One 2007 Part III examinations of the Institute of Actuaries of Australia ("Institute") were held between 7 May and 11 May 2007. Candidates attended the examinations in Australia (Sydney, Melbourne, Canberra, Perth and Brisbane) and overseas (New Zealand, Hong Kong, China, Korea, Malaysia, Singapore, Taiwan, The Netherlands, United Kingdom and USA).

This is the third year in which twice yearly examinations have been held. The tables below show the number of candidates sitting each exam over recent years. The number of candidates sitting in the latest period shows a slight increase over that in the previous period.

Table A: Candidate Numbers Sitting by Part III Subject (old courses)

	Subject	2000	2001	2002	2003	2004
1	Investment Management	102	92	80	110	136
2	Life Insurance	82	79	86	111	118
3	General Insurance	55	59	73	89	91
4	Superannuation & P.S.	25	23	26	26	25
5	Finance	45	47	68	74	62
	Total	**309**	**300**	**333**	**410**	**432**

Table B: Candidate Numbers Sitting by Part III Course (new courses)

	Subject	2004	2005 (1)	2005 (2)	2006 (1)	2006 (2)	2007 (1)
1	Investments	136[1]	187	129	162	150	171
2A	Life Insurance	118	61	62	53	51	53
2B	Life Insurance	114	22	28	25	32	37
3A	General Insurance	91	68	79	69	65	64
3B	General Insurance	91	18	34	48	41	48
4A	Superannuation & Planned Savings	25	19	11	12	8	15
4B	Superannuation & Planned Savings	25	5	10	n/a[5]	7	n/a[9]
5A	Investment Management & Finance	136[2]	20	19	14	18	17
5B	Investment Management & Finance	118[3]	10	16	14	15	n/a[9]
10	Commercial Actuarial Practice	n/a	n/a	28	23[6]	47[7]	61[8]
	Total	**432 / 854[4]**	**410**	**416**	**420**	**434**	**466**

1. The 2004 Investment Paper 1 is broadly equivalent to the 2005 Investment Course.
2. The 2004 Investment Paper 2 is broadly equivalent to the 2005 Finance Course 5A.
3. The 2004 Finance Courses 5A and 5B are broadly equivalent to the 2005 Finance Course 5B. In 2004, 62 candidates sat Finance Paper 1 and 56 candidates sat Finance Paper 2.
4. In 2004 there were 432 individual candidates, with a total of 854 enrolments by each paper/course.
5. The 4B Course did not run in 2006 (1).
6. In Semester One 2006 23 Individual Candidates enrolled, though some candidates only attempted either the Exam or the Case Study.
7. In Semester Two 2006 47 Individual Candidates enrolled, though some candidates attempted either the Exam or the Case Study.
8. CAP Semester 1 2007 61 individual candidates enrolled, 44 full course, 1 exam only, 12 case study only and 4 re-sat the case study and exam.
9. Course 4B and 5B did not run Semester 1 2007.

Results

Pass Rates

The number of candidates presenting for the Semester One 2007 Part III Exams, the recommended passes and the resulting pass rates are shown in the table below:

Table C: Recommended Number of Passes by Part III Course

	2007 (1) Sat	2007 (1) Passed	2007 (1) %	2006 (2)	2006 (1)	2005 (2)	2005 (1)	2004[1]	2003
1 Investments	171	56	33%	31%	28%	29%	24%	30%	40%
2A Life Insurance	53	18	34%	27%	32%	31%	23%	22%	28%
2B Life Insurance	37	8	22%	41%	32%	29%	50%	26%	28%
3A General Insurance	64	24	38%	38%	42%	35%	28%	33%	37%
3B General Insurance	48	23	48%	39%	50%	32%	50%	25%	37%
4A Super & PS	15	7	47%	38%	50%	18%	42%	24%	23%
4B Super & PS	n/a			57%	n/a	60%	80%	28%	23%
5A Invest. Man. & Fin.	17	6	35%	44%	50%	26%	35%	29%	40%
5B Invest. Man. & Fin.	n/a			27%	43%	31%	40%	52%	42%
10 CAP – Case Study	59[3]	39	66%	64%	73%	68%	-	-	-
10 CAP – Exam	49[3]	37	76%	88%	78%	82%			
Total	**466[4]**	**177[5]**	**38%**	**38%**	**37%**	**34%**	**30%**	**29%**	**35%**

1. The 2004 Results have been adjusted to include the passes awarded separately for Paper 1 and Paper 2.
2. For CAP, in 2005 (2) the overall pass rate was 18/28 or 64%. In 2006 (1) the overall pass rate was 14/23 or 61%. In 2006 (2) the overall pass rate was 30/47 or 64%
3. CAP Numbers who presented for two different components
4. Includes all 61 CAP Candidates
5. Figure represents pass rate in respect of 61CAP students with 35 completing this module

The Chief Examiners aim to produce a consistent standard of passing candidates, rather than a consistent pass rate from year to year. This semester, the recommended overall pass rate of 38% is at the upper end of the range achieved in recent years of 29% - 38%. The overall pass rate is in line with last semester with the latest results as a whole boosted once again by the strong results in Course 10 CAP. However, excluding the CAP results the overall pass rate would have still been 35%.

Prizes

Prizes will be awarded only once in a calendar year and this will occur following the Semester Two examinations. Each subject prize will then be awarded based on the performance of candidates in both semesters. The minimum standard for a subject prize has been set at 120% of the pass mark for both subjects. In addition, the candidate must have achieved A grades in at least 50% of questions in both exams.

Fellows

As the Part III Examinations are in transition from the pre-2005 system to the new post-2005 system, there are two ways in which candidates can qualify as Fellows.

(i) Under the pre-2005 system, candidates have to pass two courses (Modules 2 and 3 for two separate subjects).
(ii) Under the post-2005 system, candidates must pass Module 1 (Investments), one full specialist subject (Modules 2 and 3) and Module 4 (Commercial Actuarial Practice).

If the Council adopts the recommended passes, the number of members that will be made Fellows (subject to attendance at a Professionalism Course, satisfying the Practical Experience Requirement and paying any relevant exemptions) will be:

Category	2007 (1)	2006 (2)	2006 (1)	2005 (2)	2005 (1)	2004
Pre-2005 system	1	7	14	19	7	51
Post-2005 system	32	25	10	14	-	-
Total New Fellows	**33**	**32**	**24**	**33**	**7**	**51**

CHAIRMAN'S REPORT

1. Examination Administration

1.1 The Board

The Board of Examiners oversees the Part III examination process of the Institute of Actuaries of Australia (Institute). The Board of Examiners consists of the Chair and her assistants and the Chief Examiners for each subject, supported by Institute staff.

For Semester One 2007 the Chair and her Assistants were:

Chair	Ms Caroline Bayliss
Assistant Chair	Mr Andrew Smith
Assistant Chair	Mr Wesley Caine
Assistant Chair	Ms Raewin Davies
Assistant Chair	Ms Catherine Robertson-Hodder
Assistant Chair	Mr David Underwood

The Chief Examiners for Semester One 2007 were:

Course 1: Investments	Mr Stephen Woods
Course 2A: Life Insurance	Mr Puvan Arulampalam
Course 2B: Life Insurance	Mr Anthony Carey
Course 3A: General Insurance	Ms Laurel Kong
Course 3B: General Insurance	Mr Don Johnstone
Course 4A: Superannuation & Planned Savings	Mr Paul Newfield
Course 5A: Investment Management & Finance	Mr Jim Qin
Course 10: Commercial Actuarial Practice	Mr Trevor Thompson

I would like to take this opportunity to thank all of the members of the Board of Examiners and their assistants for their efforts in preparing and marking the examination papers. The management of the examination process is an extremely important function of the Institute and it is currently being run by a small group of committed volunteers. I would also like to thank my assistants, Andrew, Raewin, Catherine, David and Wesley for their support and untiring efforts in ensuring the overview process of the Chair worked smoothly and that the quality of the examinations and results was maintained.

1.2 Meetings of the Board

The Board met on three occasions as part of the Semester One 2007 exam process.

- The first meeting was held on 30th January. It was attended by representatives from each Course (Chief Examiners/Assistant Examiners) apart from courses 1, 4A, 5A and 5B. The purposes of this meeting were to:
  - update on enrolment numbers and course offerings for Semester 1 2007
  - identify Chief & Assistant Examiners and Course Leaders for each course for Semester One 2007
  - outline the responsibilities of Chief Examiners and the Semester One schedule
  - review progress on the drafting of the exams to date
  - discuss the need to obtain scrutineers.

- The second meeting was held on 5th April. It was attended by a representative from all courses except 2A, 4B and 5B (these latter two subjects were not being examined at this sitting). The purposes of this meeting were to:
  - discuss the status of Semester One 2007 examination papers and model solutions
  - discuss the marking spreadsheets and how assignments will be incorporated into the marking process
  - review the recruitment of markers and arrangements for the marking day
  - presentation by Bozenna Hinton and Trevor McMahon from Task III workforce and the review of Part III examination process
  - Discussion of documents for the Board of Examiners Manual

- The third meeting was held on 13 June and was attended by Board of Examiners, Chief Examiners or their representative from all courses. The purposes of this meeting were to:
  - review the recommended pass lists and treatment of borderline candidates
  - review the recruitment of Chief Examiners for Semester Two 2007.

1.3 Administration and Exam Supervision

The Board of Examiners was ably assisted by a number of Institute staff, in particular Mr Stephen Wright, Mr Philip Latham, Ms Robyn Butchart, Ms Carmen Joseph and Ms Lauren O'Donnell. Philip, Robyn, Carmen and Lauren were responsible for administering the entire process and ensuring key deadlines were met, compiling and formatting the examination papers, distributing material to candidates and to exam centres, processing results and collecting historical information for the production of this report. They did a great job for Semester One 2007 and the Board of Examiners team is indebted to them all.

The Semester One 2007 Part III examinations in Sydney and Melbourne were again run by an external consultancy – Language and Testing Consultancy (LTC). Other examinations were administered by Fellows or other approved supervisors. All examinations ran smoothly.

1.4 Course Leaders

In October 2004, Course Leaders were appointed by the Institute to undertake a variety of tasks relating to modules 1-3 of the new Part III education program. One of the roles of the Course Leaders was to draft examination questions in consultation with the Chief Examiners. The following is a list of the Course Leaders for Semester 1 2007:

Course 1 - Andrew Leung (assignments and exams) and Paul Carrett, Stephen Milburn-Pyle, Jeron Van Koert (tutorials)

Course 2A and 2B - Sue Howes (Faculty Leader), Owen Wormald (2A Assignment and Exams), Bruce Thomson (2A tutorials), Bruce Edwards (2B Assignments and Exams), and Alan Udel (2B tutorials)

Course 3A and 3B - GI Faculty, David Heath (3A and 3B Exams and tutorials) Dave Finnis (3A and 3B Assignments and tutorials).

Course 4A –Peter May (Course Leader), Jeffrey Chee (assignments and exams), Saffron Sweeney (tutorials and discussion forums)

Course 5A – Paul Carrett (Course Leader), Andrew Leung (tutorial, assignment and exam)

Course 10 David Service

Another role of the Course Leaders was to draft assignment questions in consultation with each subject Faculty. The Board of Examiners was not involved in this process. In most cases the drafting of the assignments worked well.

1.5 The Examination Process

The Semester One 2007 examination process began officially on 30 January 2007 with an initial meeting of the Board of Examiners. Course Leaders, however, had begun drafting examination questions from November 2006. Once Chief Examiners had been appointed in all subjects they met with Course Leaders (where applicable) to discuss the draft exam questions.

Question setting
The basic framework followed by each subject to setting exam papers is the same. The Semester One 2007 Part III examinations were run on an open book basis. Each subject includes rigorous review processes. The general framework used to set examination papers is described as follows:

- The Course Leader (or equivalent) drafts the examination questions in consultation with the Chief Examiners.
- Draft exams and solutions are reviewed by scrutineers for coverage and fairness. The scrutineers are a mix of newly qualified actuaries and experienced actuaries.
- At least one scrutineer 'sits' the paper under exam conditions to assess the length of the paper.
- Exams are redrafted after feedback from the scrutineers.

- Draft exams, solutions and marking guides are then submitted to the BoE team for review. Two members of the BoE team review the draft exams and solutions.
- Exams, solutions and marking guides are finalised by the Chief Examiners and their Assistants.
- The Course Chief Examiners sign off the final examination papers and solutions.
- A member of the BoE team also signs off on the examination papers and solutions.

Exam marking

The general framework used to mark examination papers, grade candidates and determine passes is described as follows:

- Two markers marked each question. For Investments, due to the large number of candidates, a team of six markers marked each question with each marker marking one third of the papers, in teams of two. Five control papers were also marked by all markers to ensure consistency. Inconsistencies in marks for a candidate were discussed by the markers and resolved (in most cases), before the results were forwarded to the Chief Examiner.
- Marks were scaled to allow for the fact that some questions were more difficult than others.
- Each candidate was awarded a grade for each question of A, B, C, D or E, where A was regarded as a strong pass and B an ordinary pass.
- Candidates' overall performance was determined using several metrics including total raw mark, total scaled mark, weighted average grade, weighted average rank and number of pass grades per question. The key determinant however was total scaled mark.
- Candidates were ranked based on these metrics, particularly total scaled mark.
- Candidates' assignment grades and marks were added to the exam metrics, with a weighting of 20% for Course 1 Investments and 15% for Modules 2 and 3.
- Candidates were divided into clear passes, clear failures and a middle group that required further consideration.
- The Chief Examiner reviewed the middle group individually. The pass/fail decision was made after assessing the candidate's whole exam paper, his/her performance in the judgement questions, how badly he/she performed in the questions he/she failed and whether they were 'key' areas of the course and his/her performance in the assignments.

1.6 The Assignment Process (Modules 1-3)

Question Setting

The basic framework followed by each course to setting assignment questions is the same and all subjects contain review processes. The general framework used to set assignments is described as follows:

- The Course Leader drafts the assignment (two assignments for C1 Investments). They are each worth 15% of the total marks for the subject.(20% of total marks for C1 Investments)
- Draft assignments and solutions are then reviewed by each Faculty for coverage and fairness.
- Each Faculty signs off the assignments.

Students were given access to the assignments via the specific link on the Institute web site.

The Board of Examiners did not review or comment on the assignments.

Assignment Marking
The general framework used to mark assignments, grade candidates and determine passes is described as follows:

- Each question was marked only once, with the assignments being divided up among multiple markers. Different markers had different marking standards and pass criteria. Course Leaders sample marked 5% of all assignments (or at least one assignment from each marker). Inconsistencies in marks for a candidate were to have been discussed by the relevant marker and the Course Leaders and resolved, before the results were forwarded to the Chief Examiner.
- Marks were not scaled to allow for the fact that some questions were more difficult than others.
- Each candidate was awarded a grade for each question of A, B, C, D or E, where A was regarded as a strong pass and B an ordinary pass.
- Candidates' results were based on total raw marks.

In Semester One 2007 assignments were submitted both electronically and in hard copy. The electronic copy was to be received by the due date and the hard copy was to be received within two days of the due date. The hard copy was to be submitted for Australian based students only.

1.7 Module 4 CAP - The Case Study Process

The CAP course was developed and originally delivered for the Institute by the ANU. Semester One was run directly by the Institute. The CAP team involved in the previous semester have been retained on individual contracts. The team included David Service, Elayne Grace, Tim Higgins, Richard Madden, Peter Martin, Colin Priest and Andrew Brown. The team also developed the assessment materials for the course and did the marking.

The development and delivery of the course was overseen by a Faculty, consisting of Ken McLeod (Chair), Andrew Brown, Arie van den Berg, David Knox and Donna Walker. Trevor Thompson also acted as Chief Examiner, assisted by the other members of the Faculty.

During the one-week residential course, students were required to select one case study question from one of the four defined traditional practice areas, i.e. life insurance, general insurance, superannuation or investments. The case assessment questions were reviewed by members of the Faculties for the different areas of practice, specifically:

Life Insurance:	Sue Howes
General Insurance:	Daniel Smith
Superannuation:	Steve Schubert
Investments:	Cary Helenius

The assessment questions were also reviewed by at least one member of the CAP Faculty. Last semester all candidates were awarded with marks ranging from 7.2 to 8.7 out of 10 for participation in the residential course. This semester each student received an individual participation mark with marks ranging from 3.9 to 8.7 out of 10.

1.8 Examination Dates

The Semester One 2007 Part III examinations were held on the following dates:

Course 1:	Investments	Monday 7 May
Course 10:	Commercial Actuarial Practice	Monday 7 May
Course 2A:	Life Insurance	Tuesday 8 May
Course 2B:	Life Insurance	Tuesday 8 May
Course 3A:	General Insurance	Wednesday 9 May
Course 3B:	General Insurance	Wednesday 9 May
Course 4A:	Superannuation & Planned Savings	Thursday 10 May
Course 5A:	Investment Management & Finance	Friday 11 May

1.9 Assignment Dates

The Semester One 2007 Part III assignments were due on the following dates:

Assignment One:	28 February (C1)
	7 March (3A, 4A & 5A)
	21 March (2B)
	31 March Case Study (CAP)
	2 April (3B)
	5 April (2A)
Assignment Two:	2 April (C1)

1.10 Examination Centres

Candidates sat the exams in 5 centres in Australia and 12 centres overseas. Individual exam locations were arranged in China (2), Korea (1), London (1)Taiwan (1), The Netherlands (1), and USA (2).

Table 1: Candidates by Exam Centre - Semester One 2007

	Number of Candidates
Australia	
Brisbane	6
Canberra	6
Melbourne	58
Sydney	305
Perth	2
Overseas	
China	2
Hong Kong	16
Korea	1
Malaysia	8
New Zealand	6
Singapore	16
Taiwan	1
The Netherlands	1
United Kingdom	24
USA	2
Total	454[1]

1. Includes 49 CAP exam candidates

1.11 Exam Candidature

Candidate Numbers

The number of candidates sitting the Part III exams in Semester One remained fairly static compared with the previous Semester. The slight increase in the number of candidates for course C1 (Investments) over the previous semester is expected as this is the first course that recent graduates typically sit.

Table 2: Candidate Numbers Sitting by Part III Courses (old courses)

	Subject	2000	2001	2002	2003	2004
1	Investment Management	102	92	80	110	136
2	Life Insurance	82	79	86	111	118
3	General Insurance	55	59	73	89	91
4	Superannuation & P.S.	25	23	26	26	25
5	Finance	45	47	68	74	62
	Total	**309**	**300**	**333**	**410**	**432**

Table 3: Candidate Numbers Sitting by Part III Courses (new courses)

	Subject	2004	2005 (1)	2005 (2)	2006 (1)	2006 (2)	2007 (1)
1	Investments	136[1]	187	129	162	150	171
2A	Life Insurance	118	61	62	53	51	53
2B	Life Insurance	114	22	28	25	32	37
3A	General Insurance	91	68	79	69	65	64
3B	General Insurance	91	18	34	48	41	48
4A	Superannuation & Planned Savings	25	19	11	12	8	15
4B	Superannuation & Planned Savings	25	5	10	n/a[5]	7	n/a[9]
5A	Investment Management & Finance	136[2]	20	19	14	18	17
5B	Investment Management & Finance	118[3]	10	16	14	15	n/a[9]
10	Commercial Actuarial Practice	n/a	n/a	28	23[6]	47[7]	61[8]
	Total	**432 / 854**[4]	**410**	**416**	**420**	**434**	**466**

1. The 2004 Investment Paper 1 is broadly equivalent to the 2005 Investment Course.
2. The 2004 Investment Paper 2 is broadly equivalent to the 2005 Finance Course 5A.
3. The 2004 Finance Courses 5A and 5B are broadly equivalent to the 2005 Finance Course 5B. In 2004, 62 candidates sat Finance Paper 1 and 56 candidates sat Finance Paper 2.
4. In 2004 there were 432 individual candidates, with a total of 854 enrolments by each paper/course.
5. The 4B Course did not run in 2006 (1).
6. In Semester One 2006 23 Individual Candidates enrolled, though some candidates only attempted either the Exam or the Case Study.
7. In Semester Two 2006 47 Individual Candidates enrolled, though some candidates attempted either the Exam or the Case Study.
8. CAP Semester 1 2007 61 individual candidates enrolled, 44 full course, 1 exam only, 12 case study only and 4 re-sat the case study and exam.
9. Courses 4B and 5B did not run Semester 1 2007.

Table 2 reflects numbers of candidates presenting at the exam prior to 2005 (old courses).

Table 3 shows the number of candidates presenting at the exam in the new program from 2005, with the 2004 figures repeated for comparison purposes. In 2004 candidates sat two papers per subject. For transition purposes, for the 2004 Life Insurance, General Insurance and Superannuation & Planned Savings courses, Paper 1 now equates to the 'A' component of the new 2005 course and Paper 2 equates to the 'B' component of the new 2005 course. For the 2004 Investment Management course, Paper 1 equates to the 2005 Course 1 (Investments) and Paper 2 equates to the 2005 Course 5A (Investment Management & Finance). For the 2004 Finance course, Papers 1 and 2 equate to the 2005 Course 5B (Investment Management & Finance) with students only requiring to receive a pass in either one of the 2004 Finance papers to be given credit for Course 5B.

Withdrawal Rates

In Semester One 2007, 483 candidates initially enrolled in courses, however 29 candidates subsequently withdrew from courses or did not present for the examination.

The number of candidates that enrolled for a course but withdrew prior to the examination was highest an absolute terms for Investments (9 officially withdrew prior to the examinations and 6 did not present for the exam, out of 186 originally enrolled). For other courses, the absolute number of withdrawals was similar to the previous semester, with the exception of General Insurance courses where withdrawal rates were significantly lower than in the previous semester (13.3% and 10.9% for 3A and 3B respectively in semester 2 2006). The withdrawal rate for the Investment Management and Finance course was higher than in previous semesters, however the small number of enrolments means that this statistic cannot be necessarily be regarded as a reliable indicator. The overall percentages that withdrew were broadly consistent with past experience. The withdrawal rates for all subjects were:

Table 4: Withdrawal Rates by Part III Course – Semester One 2007

	Subject	Initially Enrolled	Withdrew prior to Exam	Absent from exam	Total Withdrawing	%
1	Investments	186	9	6	15	8.1%
2A	Life Insurance	57	4	0	4	7.0%
2B	Life Insurance	38	1	0	1	2.6%
3A	General Insurance	67	3	0	3	4.5%
3B	General Insurance	49	1	0	1	2.0%
4A	Superannuation & P.S.	15	0	0	0	0%
4B	Superannuation & P.S.	N/A				
5A	Invest Management & Finance	22	4	1	5	22.7%
5B	Invest Management & Finance	N/A				
10	Commercial Actuarial Practice	61[1]	0	0	0	0%
	Total	**495**	**22**	**7**	**29**	**5.9%**

1. Includes exam and case study CAP candidates

Candidate Mix

The mix of courses sat by candidates is broadly similar to that in previous years. The numbers for Investments has increased compared with last Semester. It is expected that the percentage enrolling in Investments will be higher in Semester One than in Semester Two as it is compulsory under the new Part III structure and new students are likely to sit it first. Our expectation had been that more students were likely to sit CAP in Semester Two than Semester One. However, it can be seen that the CAP numbers have increased significantly compared with last semester.

The enrolments for Life Insurance have been fairly constant at approximately 20% for the latest five semesters, down from a previous trend of 27%. This pattern is reversed for the General Insurance Course, where the latest four semesters show enrolments at 24% to 28%, while previously they were trending around the 20% mark. The enrolments in Superannuation show a continuing gradual decline, reflecting the perceived reduction in employment opportunities in this area. The Investment Management and Finance enrolments show a significant decrease over the previous semester, for reasons which are not yet clear. CAP enrolments continue to show an increasing trend compared to the previous semesters.

Table 5: Candidate Mix by Part III Course – Enrolments Semester One 2007

	Subject	2003	2004	2005 (1)	2005 (2)	2006 (1)	2006 (2)	2007 (1)
1	Investments[1]	27%	32%	46%	31%	39%	35%	38%
2	Life Insurance	27%	27%	20%	21%	19%	19%	20%
3	General Insurance	22%	21%	21%	27%	28%	25%	24%
4	Superannuation & P.S.	6%	6%	6%	5%	3%	3%	3%
5	Investment Mgt & Finance[2]	18%	14%	7%	10%	7%	8%	4%
10	Comm. Actuarial Practice	n/a	n/a	n/a	6%	5%	9%	12%[3]
	Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

1. Course 1 Investments prior to 2005 was equivalent to Investment Management.
2. Investment Management and Finance prior to 2005 was equivalent to Finance.
3. Includes all CAP candidates enrolled including case study and or exam only - 61

2. Examination Papers and Assignments

2.1 Examination Structure

The structure of the examinations in Semester One 2007 was a single three-hour exam paper for Modules 1-3 and a two-hour exam paper for Module 4 (Course 10 – Commercial Actuarial Practice). The exam for Module 1 was worth 80% of the final assessment, with the two assignments each worth 10%. The exams for Modules 2-3 were worth 85% of the final assessment, with the assignment worth 15%.

For Modules 1-3, each course was assessed individually. That is, a candidate can choose to sit (and subsequently pass or fail) only Course A (relating to Module 2) or Course B (relating to Module 3) of the subject. This differs from 2004 and earlier exams where candidates sat for the entire course (both A and B parts). For the 2004 exams, candidates were awarded a transitional pass for a paper if they passed either Paper 1 (Course A) or Paper 2 (Course B).

For Module 4, Commercial Actuarial Practice, assessment was determined as follows:

- *First piece*: participation in a one-week residential course (5%) and completion of a case study in a traditional practice area, over 8 hours, on the course's 6^{th} day (45%).

- *Second piece*: two-hour exam paper on non-traditional areas of actuarial practice, answering 2 out of 5 questions (50%).

- In order for a candidate to obtain an overall pass in Module 4, both pieces of the assessment had to be passed. Students receiving an overall fail could be awarded a pass for either assessment piece and would only need to complete the other piece in a future semester, within a two-year period.

2.2 Assignment / Case Study Structure

The structure of the assignments in Semester One 2007 was two assignments for Module 1 (with each assignment worth 10% of the final assessment) and one assignment for Modules 2 and 3 with the assignment worth 15% of the final assessment.

Module 4 (Course 10 – Commercial Actuarial Practice) was assessed by 50% exam and 50% case study. Within the 50% case study assessment, which needed to be passed independently of the exam, the case study itself was worth 90% of the final assessment. Candidates completed the case study on the final day of the residential course, under exam conditions. In addition, general participation in the residential course was assessed at 10% of the case study marks.

2.3 Examination Standards

In each course there was a mix of questions covering three categories:

- applying bookwork to familiar and unfamiliar circumstances. This category is aimed at testing the candidates' knowledge and understanding (KU)
- problem solving requiring simple judgement (SJ)
- problem solving requiring complex judgement (CJ).

The questions aimed to cover the whole syllabus. In the case of Module 1 (Investments) the examination was based on the syllabus and a previously determined set of readings.

The standards to be achieved by candidates sitting each course, the principles on which papers are to be set and the marking procedures, are set out in the Guidelines to Examiners. To ensure the examination papers had proper balance, guidance as to the proportion of marks given to each category needed to be established. The standards of difficulty as determined by the Chief Examiners at the time they set the papers are set out below, with a comparison to the prior semester.

Table 6: Standards of Difficulty by Part III Course

		Knowledge & Understanding		Simple Judgement		Complex Judgement	
	Subject	2006 (2)	2007 (1)	2006 (2)	2007 (1)	2006 (2)	2007 (1)
1	Investments	30%	17%	34%	42.5%	36%	40.5%
2A	Life Insurance	23%	20%	38%	41%	39%	39%
2B	Life Insurance	22%	21%	38%	38%	40%	41%
3A	General Insurance	19%	17%	47%	44%	34%	39%
3B	General Insurance	23%	20%	40%	50%	37%	30%
4A	Superannuation and PS	19%	19%	40%	42%	41%	39%
4B	Superannuation and PS	20%	n/a	39%	n/a	41%	n/a
5A	Invest. Management & Finance	19%	21%	38%	41%	43%	38%
5B	Invest. Management & Finance	27%	n/a	43%	n/a	30%	n/a
	Targets	**15% - 25%**		**35% - 45%**		**35% - 45%**	

The examination papers were broadly similar in standard of difficulty to prior periods.

Copies of the examination papers have not been included within this report in the interests of space. They are available from the Institute if required. Detailed comments on the quality of candidates' answers to the exam questions are contained in each Chief Examiner's report.

2.4 Assignment Standards

The setting of standards for the assignments used the same approach as for the examinations, that is, questions were set covering the following three categories:

- applying bookwork to familiar and unfamiliar circumstances. This category is aimed at testing the candidates' knowledge and understanding (KU)
- problem solving requiring simple judgement (SJ)
- problem solving requiring complex judgement (CJ).

Whilst the target weighting of each category for the exams was essentially 20% KU / 40% SJ / 40% CJ, the target weighting for the assignments was 40% KU / 40% SJ / 20% CJ. With the introduction of assessable assignments the exam is only worth 85% (80% for Course 1 Investments) of the final assessment from 2007. This means that a higher component of the assessment is KU ("bookwork") and a lower proportion of the assessment is CJ ("complex judgement"), under the new system, compared with 2004 and earlier.

Although the target weightings of the assignments for each subject were 40%/40%/20% the Board of Examiners was not informed of the actual weightings of any of the assignments. Copies of the assignments were not supplied to the Board of Examiners, but should be available from the Institute if required.

2.5 Comments on Candidates' Examination Performance

General observations on candidates' performance in each subject are as follows. These observations include my own comments.

Course 1 - Investments
In summary, the exam acted as a good discriminator with raw marks ranging from 31.9 to 126.9 out of 200. The conclusion of most marker pairs was that the quality of responses was generally weak in consideration of the question posed to candidates. This is reflected in the low number of A grades awarded (9 overall representing 5% of candidates) despite a relatively high pass rate compared to recent sessions.

Course 2A - Life Insurance
Overall the exam paper was regarded as a very fair one, and acted as a reasonable discriminator, with raw marks (exam only) ranging from 59 to 117 out of 200. This range is similar to previous sessions (November 2006: 47 to 114; and Nov 2005: 50 to 113). 80% of candidates scored between 90 and 117, and there was a fairly clear break around 95.

A number of candidates continue to copy points from the textbook and fail to put those comments into the context of the question. Candidates need to realise that the exam is predominantly about applying judgment and not regurgitating points from the textbook.

In addition, candidates also need to be reminded that good presentation, i.e. answers which are well structured and clearly set out, is part of good exam technique. It needs to be stated that markers and examiners are looking for clear, simple answers that demonstrate understanding of the issues posed by the questions.

Course 2B - Life Insurance
The overall performance in the exam was considered quite disappointing. While in hindsight, the examiners do believe that the exam was somewhat more challenging (particularly in relation to question 2), it was still felt that the general quality of responses was relatively weak.

As a general comment, many students either did not relate their answers back to the specific situations or products used in the questions, or covered very few different points in their answers (i.e. explaining in detail a couple of points rather than describing several different points where this was required).

Course 3A - General Insurance
Although the intention was to have a consistent level of difficulty with previous paper, the exam has proven relatively straightforward, with this showing clearly in the results.

The average raw exam mark this semester was 104, relative to 85 for the November 2006 examination, 100 in the May 2006 examination and 86 for the November 2005 examination. The raw marks in each of the six exam questions ranged from 47% to 59%, which is at the higher end of the November 2006 examination which ranged from 29% to 58% of the total marks available. This appears to compare more closely with the May 2006 exam (43% to 55%), but is high relative to the November 2005 paper (26% to 57%).

Candidates demonstrated some general areas of weakness – these are set out in the Chief Examiner's Report.

Course 3B - General Insurance
Overall the exam paper acted as a reasonable discriminator, with raw marks ranging from 78 to 144 out of 200. This range was wider than last semester (80 to 131 out of 200). The higher average marks than last semester (113 vs 103) were due mostly to the assignment (75% average raw mark for one assignment worth 15% vs 56% average across 2 assignments worth 20%). Overall student performance was similar to that in prior semesters.

This paper was the first to be written by the Course Leaders, with oversight and significant input by the examiners. The examiners consider that this process gave a paper that assessed candidates' ability to apply what they had learned from the readings to practical situations.

Course 4A - Superannuation and Planned Savings
Overall, 47% of students passed the course and of the 8 candidates who did not pass i.e. the remaining 53% of candidates – 2 received an overall D grade and the other 6 received a grading of C overall.

Overall the performance was stronger than for November 2006 (37.5% pass rate) and weaker than May 2006 (50% pass rate).

However, given the small sample size it is hard to draw any significant inferences.

Course 5A - Investment Management and Finance
As is par for the course, this year's exam proved to be reasonably difficult for the majority of candidates. The pass rate of 35% (6 from 17 candidates), is not dissimilar to past examinations and is marginally lower than last semester's pass rate of 44%. While some concerns could be expressed regarding the overall performance, an analysis of the results highlights a core group of 6 candidates that performed capably across a range of targeted areas of study and were clear passes.

The results should also be considered in light of the fact that the exam was challenging in terms of its breadth and the level of detailed knowledge required in each of the areas. Candidates were, as expected, presented with some difficult challenges, especially in light of the time constraints involved.

Course 10 – Commercial Actuarial Practice

The Commercial Actuarial Practice (CAP) Course was conducted for the fourth time in Semester One 2007. The overall assessment was focused on the practical application of judgement and on the communication skills of the students, rather than on bookwork.

There were two separate pieces of assessment. The first assessment was based on participation in a one-week residential course and on completion of a case study in one of the traditional areas of actuarial practice on the last day of the residential course. The second assessment was a 2-hour examination on non-traditional areas of actuarial practice. Students were required to pass each of these assessments in order to pass the Module.

An overall pass rate of 57% (30 candidates of 47) was achieved including a pass rate for the case study of 66% (39 candidates out of 59) and a pass rate for the exam of 76% (37 candidates out of 49). The overall course completion rate of 57% represents a decrease from the pass rate of 64% achieved in Semester 2 2006.

3. Results

3.1 Pass Standards

The standards for determining whether a candidate should be granted the status of Fellow of the Institute of Actuaries of Australia are based on whether an individual demonstrates core capabilities required for an actuary practicing professionally in their specialty area(s). Candidates are required to demonstrate:

- a strong knowledge of the nature, operations, legislation and current issues of the selected practice area(s)
- a detailed knowledge and understanding of the application of actuarial concepts and skills to the chosen practice area(s)
- an ability to apply judgement to solve problems in the chosen practice area(s) that may be characterised by complexity, varying degrees of clarity of definition and novel or unseen circumstances.

A candidate is not expected to demonstrate these capabilities at the level of an experienced and skilled practitioner. It is unreasonable to expect candidates to demonstrate the degree of understanding of an actuary of some year's experience. Rather, the benchmark is whether the candidate is proficient to commence practicing professionally in their specialty area(s). Provided the candidate shows a grasp of the main principles, a pass should be awarded. Conversely, a candidate who demonstrates dangerous misconceptions or misapplication of concepts or ideas is viewed more seriously than a candidate who shows a simple lack of knowledge.

The Chief Examiners in the Part III Courses place greater emphasis on the questions that require the candidate to demonstrate the ability to apply bookwork to specific situations and show judgement to solve problems. When grading borderline candidates, their ability to do well in such questions has a greater bearing on whether they pass or fail. The Chief Examiners however, are very conscious of the fact that it is unreasonable to expect candidates to demonstrate the degree of understanding of an actuary with years of experience. In addition, actuaries are expected to be able to demonstrate their skills to those outside the profession. Candidates are expected to be able to communicate clearly and may be penalised if their answers are not clearly expressed.

3.2 Candidates' Results

Candidates' results in each subject and at each level are set out in the attachments to each Chief Examiner's report. In summary the results are:

Table 7: Recommended Candidate Passes by Part III Course

	Subject	2002	2003	2004	2005(1)	2005(2)	2006(1)	2006(2)	2007 (1)
1	Investments[1]	29	44	39	45	38	45	46	56
2A	Life Insurance	33	31	21	14	19	17	14	18
2B	Life Insurance	33	31	21	11	8	8	13	8
3A	General Insurance	26	33	23	19	28	28	25	24
3B	General Insurance	26	33	23	9	11	24	16	23
4A	Superannuation & P.S.	8	6	6	8	2	6	3	7
4B	Superannuation & P.S.	8	6	6	4	6	n/a	4	-
5A	Invest. Mngmt & Finance[2]	29	44	39	7	5	7	8	6
5B	Invest. Mngmt & Finance[3]	21	31	22	4	5	6	4	-
10	Comm. Actuarial Practice	-	-	-	-	18	14[5]	30	35[6]
	Total (pre 2005)[4]	**117**	**145**	**111**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
	Total (post 2005)	**213**	**259**	**200**	**121**	**140**	**156**	**163**	**177**

1 The 2004 Investment Paper 1 is broadly equivalent to the 2005 Investment Course.
2 The 2004 Investment Paper 2 is broadly equivalent to the 2005 Finance Course 5A.
3 The 2004 Finance Courses 5A and 5B are broadly equivalent to the 2005 Finance Course 5B.
4 Pre 2005, only complete (A+B) passes were awarded, so the Total only includes one pass per complete Course.
5 CAP had 30 overall passes. out of 47 candidates presenting. It had 28 passes out of 44 candidates presenting for the case study and 38 passes out of 43 presenting for the exam.
6 61candidates, 35 passes in the course (including case study and/or exam)

Table 8: Recommended Pass Rates by Part III Course

	Subject	2002	2003	2004[4]	2005(1)	2005(2)	2006(1)	2006(2)	2007 (1)
1	Investments[1]	36%	40%	30%	24%	29%	28%	31%	33%
2A	Life Insurance	38%	28%	22%	23%	31%	32%	28%	34%
2B	Life Insurance	38%	28%	26%	50%	29%	32%	41%	22%
3A	General Insurance	36%	37%	33%	28%	35%	42%	38%	38%
3B	General Insurance	36%	37%	25%	50%	32%	50%	39%	48%
4A	Superannuation & P. S.	31%	23%	24%	42%	18%	50%	38%	47%
4B	Superannuation & P. S.	31%	23%	28%	80%	60%	n/a	57%	-
5A	Invest. Mngmt & Finance[2]	36%	40%	29%	35%	26%	50%	44%	35%
5B	Invest. Mngmt & Finance[3]	31%	42%	52%	40%	31%	43%	27%	-
10	CAP – Case Study	-	-	-	-	68%	73%	64%	66%
10	CAP – Exam					82%	78%	77%	76%
	Total	**35%**	**35%**	**29%**	**30%**	**34%**	**37%**	**38%**	**38%**[5]

1 The 2004 Investment Paper 1 is broadly equivalent to the 2005 Investment Course.
2 The 2004 Investment Paper 2 is broadly equivalent to the 2005 Finance Course 5A.
3 The 2004 Finance Courses 5A and 5B are broadly equivalent to the 2005 Finance Course 5B.
4 The 2004 Results have been adjusted to include the passes awarded separately for Paper 1 and Paper 2.
5 Based in CAP results of 61candidates, 35 passes in the course (including case study and or exam) = 57%

The Chief Examiners aim to produce a consistent standard of passing candidates, rather than a consistent pass rate from year to year. This semester, the recommended overall pass rate of 38% is at the upper end of the range achieved in recent years of 29% - 38%.

The overall pass rate is in line with last semester with the latest results as a whole boosted once again by the strong results in Course 10 CAP of 66% for the Case Study and 76% for the Exam. However, excluding the CAP results the overall pass rate would have still been 35%.

The pass rate for Course 10, Commercial Actuarial Practice (CAP), of 57% overall and 66% for the Case Study and 76% for the exam was significantly higher than the average pass rate for Modules 1-3 of 38%. As discussed with the previous CAP Chief Examiner, this was due to the following factors:

- CAP is a fundamentally different subject to those in Modules 1-3. It is undertaken as a one-week taught residential course, rather than as distance education, and has two assessment pieces, that is, the case study and the exam.
- CAP is undertaken by more experienced candidates that are generally closer to final qualification. These candidates would be expected to achieve a higher pass rate than the average rate across all candidates.
- The actual pass rate achieved of 64% was close to that expected at the outset of the course.
- Each assessment piece was double marked and then reviewed by the CAP Chief Examiner. To ensure consistency across the different subjects, one of the markers marked all case studies and all exams.
- CAP will be compulsory to all Part III students once transition ends. Any fundamental differences between CAP and Modules 1-3 will impact equally on all students.

The Board agreed that the standard applied to marking the exams for all subjects was ultimately the same as in previous years.

Further detail on the deliberations of each Chief Examiner is contained in their individual reports. I am satisfied that the processes adopted in the marking of papers and grading of exam papers have been fair and robust. The single marking of assignments may have led to some discrepancies among candidates, though due to the relatively few candidates whose results were changed by their assignment result (partly as a result of the reduced weighting given to assessments), this would not have had a big impact overall. Every effort has been made to ensure consistency between years and between subjects.

3.3 Pass Rates by Centre

The pass rates by exam centre were as follows:

Table 9: Comparison of Pass Rates by Centre

	2003	2004	2005(1)	2005(2)	2006(1)	2006(2)	2007 (1)
Sydney	40%	28%	33%	43%	36%	42%	40%
Melbourne	32%	38%	33%	30%	38%	37%	50%
Other*	30%	15%	21%	19%	39%	25%	34%
Total	**35%**	**26%**	**30%**	**34%**	**37%**	**38%**	**38%**[1]

* Other Australian and overseas exam centres

1. Number incorporates only 49 CAP students sitting the exam out of a total of 61 candidates

I have examined the pass rates by specialist subject and examination centre. This analysis revealed a number of interesting features, including:

- The overall pass rate for non-Sydney/Melbourne examination centres is much lower than the overall pass rate for the Sydney/Melbourne examination centres (34% compared with 42%).
- The pass rate in Sydney, the largest centre with 67% of all candidates, was 40% this semester.
- In New Zealand only 1 candidate from 6 attempts passed (17%).
- There were 7 passes in the United Kingdom (the largest overseas centre) from 22 attempts (32%).

3.4 Pass Marks and Scaling

The scaled pass marks for 2004 and prior, out of 400 marks, have been as follows, together with the scaled pass marks for 2005 Semesters one and onward, out of 200 marks:

Table 10: Scaled Pass Marks by Part III Course

	Subject	2003	2004	2005(1)[4]	2005(2)[4]	2006(1)[4]	2006(2)[4]	2007(1)
1	Investments[1]	216	220	103	114	103	120	121
2A	Life Insurance	231	224	121	115	114	122	115
2B	Life Insurance	231	224	123.5	110	119	124	111
3A	General Insurance	230	225	117	109	116	113	111
3B	General Insurance	230	225	116	112	115	118	120
4A	Superannuation & P.S.	250	230	111	115	122	127	120
4B	Superannuation & P.S.	250	230	112	115	n/a	128	-
5A	Invest. Mngmt & Finance[2]	216	220	120	107	120	102	100
5B	Invest. Mngmt & Finance[3]	251	236	110	108	120	123	-
10	Comm. Actuarial Practice	-	-	-	50 - 50[5]	50 - 50[5]	50 - 50[5]	50-50[5]

1 The 2004 Investment Paper 1 is broadly equivalent to the 2005 Investment Course.
2 The 2004 Investment Paper 2 is broadly equivalent to the 2005 Finance Course 5A.
3 The 2004 Finance Courses 5A and 5B are broadly equivalent to the 2005 Finance Course 5B.
4 The post 2004 exams are only one paper and are out of 200. Prior years consist of two papers out of 400.
5 For CAP, the case study and the exam each had a pass mark of 50%.

The relationship between scaled and raw marks for 2007 Semester One was:

Table 11: Raw and Scaled Pass Marks by Part III Subject

	Subject	Raw	Scaled
1	Investments	97	121
2A	Life Insurance	102	115
2B	Life Insurance	101	111
3A	General Insurance	109	111
3B	General Insurance	105	120
4A	Superannuation & Planned Savings	110	120
4B	Superannuation & Planned Savings	-	-
5A	Investment Management and Finance	88	100
5B	Investment Management and Finance	-	-

A consistent pass criteria has been used for all subjects. These reflect assessments based on a single paper of approximately six questions. The criteria are:

- the scaled mark
- a grade point average of around 2.5
- number of questions passed being “50% of questions + 1, rounded down” e.g. pass 4 from 6 questions; pass 4 from 7 questions or pass 3 from 5 questions.
- no more than 2 D’s or 1E.
- borderline candidates are to be assessed carefully, with the examiners re-marking their papers, as in previous years.
- assignments were included in the assessment process, with passes in the assignments being added to the numbers of questions passes, in the assessment process. The assignments were weighted at 15% (20% for Course C1) of the overall assessment.

The range of scaled marks in Semester One 2007 was 100-121 out of 200, a range of 21 marks. This compares to Semester Two 2006 being 102 – 128 out of 200, a range of 26 marks.

It should be noted that, as discussed above, the scaled mark was not the sole factor used to determine whether a candidate passed or did not pass.

3.5 Fellows

As the Part III Examinations are in transition from the pre-2005 system to the new post-2005 system, there are two ways in which candidates can qualify as Fellows:

(i) Under the pre-2005 system, candidates have to pass two courses (Modules 2 and 3 for two separate subjects).
(ii) Under the post-2005 system, candidates have to pass Module 1 (Investments), one complete specialist subject (Module 2 and Module 3) and Module 4 (Commercial Actuarial Practice).

If the Council adopts the recommended passes, the number of members that will be made Fellows (subject to attendance at a Professionalism Course, satisfying the Practical Experience Requirement and paying any relevant exemptions) will be:

Category	2007 (1)	2006 (2)	2006 (1)	2005 (2)	2005 (1)
Pre-2005 system	1	7	14	19	7
Post-2005 system	32	25	10	14	-
Total New Fellows	**33**	**32**	**24**	**33**	**7**

4. Recommendations for Semester Two 2007

4.1 Board of Examiners

The recommended constitution for the Board of Examiners for Semester Two 2007 is as follows:

Chair and Assistants

Chair	Ms Caroline Bayliss
Assistant Chair	Mr Andrew Smith
Assistant Chair	Mr Wesley Caine
Assistant Chair	Ms Raewin Davies
Assistant Chair	Mr David Underwood
Assistant Chair	Ms Catherine Robertson-Hodder

Chief Examiners

Course 1: Investments	TBC
Course 2A: Life Insurance	Mr Rodney Scott
Course 2B: Life Insurance	Mr Anthony Carey
Course 3A: General Insurance	Ms Laurel Kong
Course 3B: General Insurance	Mr Brett Riley
Course 4B: Superannuation & Planned Savings	TBC
Course 5B: Investment Management & Finance	Mr Jim Qin
Course 10: Commercial Actuarial Practice	TBC

A number of the Chief Examiner positions are yet to be confirmed for Semester Two 2007.

4.2 Examination Dates

The dates for the examinations in Semester Two 2007 are as follows:

Semester 1 2007

Module 1	Investments	Mon	29 October am
Module 4 (10)	Commercial Actuarial Practice	Mon	29 October pm
Modules 2/3 (2A/2B)	Life Insurance	Tues	30 October am and pm
Modules 2/3 (3A/3B)	General Insurance	Wed	31 October am and pm
Modules 2/3 (4B)	Superannuation & Planned Savings	Thur	1 November am
Modules 2/3 (5B)	Investment Management & Finance	Fri	2 November am

4.3 Exam Solutions

The Board of Examiners has agreed to release the Semester One 2007 examination papers along with the examination specimen solutions and marking guides. It is recommended that the 2007 Semester One examination papers and exam solutions and marking guides be released on 27 June 2007 or as close to this time as possible.

Caroline Bayliss
Chair, Board of Examiners
18 June 2007

Subject C1: Investments

1. Summary

1.1. Candidate numbers

	Number of candidates
Originally enrolled	186
Withdrew prior to examination	9
Absent from examination	6
Presented at examination	171
Recommended Passes	56
Recommended Fails	115

1.2. Pass rates

The recommended passes correspond to a pass rate of 33% of candidates presented at the examination. This compares to the pass rates in recent sessions as follows:

Year	Semester 1	Semester 2
2006	28%	31%
2005	24%	29%

1.3. Examination centres

Centre	Presented	Passed	Pass Rate
Auckland	2		0%
Brisbane	1		0%
Canberra	4		0%
Hong Kong	6	3	50%
London	9	5	56%
Malaysia	4	1	25%
Melbourne	22	6	27%
Perth	1	1	100%
Singapore	6	1	17%
Sydney	111	39	35%
Wellington	1		0%
Other	4		0%
Total	**171**	**56**	**33%**
Australia	139	46	33%
Overseas	32	10	31%

2. Examination Administration

2.1 Examiners

Chief examiner: Stephen Woods
Assistant examiners: Stuart Cheetham, Shaun Gibbs

2.2 Course leader

Course leader: Andrew Leung

3. Examination Papers and Assignments

3.1 Degree of difficulty and course coverage of examination

The following table shows the distribution of questions and marks by level of difficulty and course coverage:

Question	Units	Knowledge & Understanding	Straightforward Judgement	Complex Judgement	Total Marks
1a	BM	2	1		3
1b	BM		2		2
1c	BM		2	1	3
1d	BM		3	2	5
1e	BM	2	1		3
1f	BM			4	4
2a	1	1½			1½
2b	1		1½		1½
2c	1	1	2	2	5
2d	1		1	3	4
2e	1		2	2	4
2f	1		2	2	4
3a	1	2			2
3b	1		2	1	3
3c	1	2	2	2	6
3d	1		2	3	5
3e	1			4	4
4	Format	1			1
4a	2	1	1	1	3
4b	2	1½	3		4½
4c	2		2	2	4
4d	2		3		3
4e	2		3	1½	4½
5a	2		1	1	2
5b	2	2	1		3
5c	2	1	3	2	6
5d	2		2	1	3
5e	2			3	3
5f	2			3	3
TOTAL		**17**	**42½**	**40½**	**100**

4.1 Overall performance

The conclusion of most marker pairs was that the quality of responses was generally weak in consideration of the question posed to candidates. This is reflected in the low number of A grades awarded (9 overall representing 5% of candidates) despite a relatively high pass rate compared to recent sessions.

It is difficult to foresee a significant increase in the pass rate for this course without eroding the standard of quality.

Subject 2A: Life Insurance

1. Summary

For the May 2007 exams, there were 57 candidates enrolled, 4 of whom withdrew before the examination day.

It is proposed that 18 candidates be awarded a Pass, which implies a pass rate of 34%. This compares with pass rates of 27.5%, 32% and 31%, for the examination sessions in November 2006, May 2006 and November 2005, respectively.

In summary:

	Number of candidates
Originally enrolled	57
Absent and/or withdrawn	4
Present at exams	53
Passed	18
Failed	35

The analysis by Examination Centre is as follows:

Centre	Present	Passed	Pass Rate May 2007	Pass Rate Nov 2006	Pass Rate May 2006	Pass Rate Nov 2005
Amsterdam	0	0	n/a	100%	n/a	n/a
Auckland	2	1	50%	33%	0%	100%
Brisbane	n/a	n/a	n/a	n/a	100%	67%
Hong Kong	4	0	0%	0%	25%	7%
Malaysia	2	1	50%	0%	0%	0%
Melbourne	6	4	67%	33%	29%	33%
Singapore	3	2	67%	50%	0%	17%
Sydney	34	9	26%	25%	43%	37%
United Kingdom	1	1	100%	100%	0%	100%
Other (*)	1	0	0%	0%	0%	n/a
Totals – AUST	**40**	**13**	**33%**	**27.8%**	**42%**	**n/a**
Totals – Overseas	**13**	**5**	**38%**	**27.3%**	**12%**	**n/a**
Totals – ALL	**53**	**18**	**34%**	**27.5%**	**32%**	**31%**

Note: Temporary Exam Centre in Taiwan

2. Examination and Administration

Examiners

The Examination Team for the 2A course in this semester were:

Chief Examiner: Puvan Arulampalam
Deputy Examiner: Rodney Scott
Assistant Examiner: Ian Werner

Course Leaders: Owen Wormald & Bruce Thomson

For this examination session, the Chief and Deputy Examiners for Subject 2A were appointed from their Assistant Examiner roles in Semester 2 - 2006, and the Assistant Examiner scrutineered last semester's exam paper. The examination preparation and review phase was a well-organised process, allowing the Examination Team to meet the deadlines fairly comfortably. The Course Leader was very helpful in assisting the Team with all aspects of this process, including the recruitment and co-ordination of scrutineers.

3. Examination Papers and Assignments

Degree of Difficulty and Course Coverage

The analysis of the degree of difficulty of exam questions in the format specified by the IAAust is as follows:

Question	Syllabus Aims	Knowledge & Understanding	Straight-Forward Judgement	Complex Judgement	Total Marks
1	1,8,13,14	6	6	5	**17**
2	1,2,4,5,7,9,10,11,12,13,14	4	7	4	**15**
3	2,3,47,8,9	4	4	9	**17**
4	1,2,3,4,6,9,10,11,12,13,14	5	8	5	**18**
5	6,8,9,11,13,14	1	7	8	**16**
6	1,2,3,4,7,8,15,16		9	8	**17**
Total		**20**	**41**	**39**	**100**

The overall degree of difficulty is well within the permissible range of +/-5, as against the target spread of 20/40/40.

Overall Performance

Overall the exam paper was regarded as a very fair one, and acted as a reasonable discriminator, with raw marks (exam only) ranging from 59 to 117 out of 200. This range is similar to previous sessions (November 2006: 47 to 114; and Nov 2005: 50 to 113). 80% of candidates scored between 90 and 117, and there was a fairly clear break around 95.

A number of candidates continue to copy points from the textbook and fail to put those comments into the context of the question. Candidates need to realise that the exam is predominantly about applying judgment and not regurgitating points from the textbook.

In addition, candidates also need to be reminded that good presentation, i.e. answers which are well structured and clearly set out, is part of good exam technique. It needs to be stated that markers and examiners are looking for clear, simple answers that demonstrate understanding of the issues posed by the questions.

Question by Question Analysis

Question 1 (17 Marks)

This question deals with carrying out and interpreting the results of an investigation into the trauma experience of a medium sized life insurance company specialising in risk products. The experience investigation was to be done by a new graduate who has just joined the company, under the supervision of the candidate.

Candidates were -

(a) required to draft a memo (CJ) to the graduate outlining the main steps in doing the investigation, from obtaining requirements to producing the results. (KU).

(b) provided with a table comparing the company's experience to that of the trauma results included in the IAAust Lump Sum Experience Investigation 1998-99 and were required to describe the main features of this comparison (SJ).

and

(c) required to explain the implication of the results for profitability and re-pricing of the company's product (CJ) .

Overall, the question was fairly straightforward but was not well handled by many candidates. Part (a) was answered quite superficially by many candidates, who did not realise that some detail was required to earn 7 marks. Reinsurance was overlooked by all but a few. Obtaining past investigations was also missed by many. Report format and language was below par.

Part (b) was the place to pick up easy marks but not many succeeded. Many candidates missed items like types of trauma illnesses and the different timing of the industry and the company's investigations.

Part (c) was answered poorly. Many candidates assumed the table was based on the pricing basis resulting in description of the company's experience as being good. Few saw the risk component of the premium as being a large component and the implications of this on profitability.

Question 2 (15 Marks)

This question explores the relationship between direct insurers and reinsurers and the differences and similarities between Direct Marketed products and intermediated products.

The question concerns a medium sized life insurer writing only Yearly Renewable Term insurance who facing declining sales are looking for innovative ideas for reversing this trend. The insurer has approached their reinsurer to discuss a proposal to Direct Market products to community based groups with the objective of improving sales.

The candidate who is a product actuary with a reinsurer is asked to -

(a) List the reasons why life insurers would use the services of a reinsurer and to outline the products and services offered by reinsurers. (KU)

(b) How assumptions would differ between those for Direct marketed products compared with those sold by intermediaries? (SJ)

(c) Identify the risks faced by the reinsurer in offering this reinsurance and to suggest how the reinsurance terms might be structured to mitigate these risks. (CJ)

and

(d) Prepare a worksheet outlining the column headings and their definitions that is to be used for calculating the Gross of Tax yield on transfers and also a definition of the yield on transfers. (SJ)

Part (a) being a simple list of the benefits of reinsurance, was generally well-answered by students. The answers for the remainder of the question were generally not as well-answered, but many students recognised that different types of reinsurance were required to be outlined, the best answers being those that described exactly how reinsurers services' were of assistance (for example, underwriting manuals, claims peer-reviews, etc). Good answers also made it easier to give marks by separating the responses between the three parts of the question.

Part (b) was generally not well-answered, with students not covering the likely changes in the mortality and expense assumptions in sufficient detail. Importantly, many students did not pick up on both the numerator and denominator of a unit cost calculation changing (mainly focussing on changes in the numerator). A number of students discussed the change in the lapse assumption (aside from the effect on the impact on the expense calculation), and were awarded marks for this.

Part (C) was the least well-understood part of the question, which was to be expected as it was the part that required complex judgement. Students generally did not outline enough of the possibilities for issues to arise, which were a combination of problems that the reinsurer could experience, and those that the insurer could have. The most commonly-missed solutions to the question were those where the reinsurer 'worked with' the insurer, i.e., training of staff, audit of operations, etc.

Part (d) was generally well-answered by students. The most common errors by students were to not fully define the terms that were mentioned as column headings (instead simply listing them), not mentioning that the internal rate of return is that discount rate at which the present value of transfers is zero, and mistakenly specifying the yield on transfers equation as applying to the reinsurer, rather than the insurer.

Question 3 (17 Marks)

This question looks at a company's sales and lapse experience and the impact of a particular group of advisers has on that experience. The candidate is given a table showing the targeted and ratio of lapses to sales for the company as a whole, and the same ratio for a significant intermediary for the last 6 years.

As the appointed actuary of this medium sized Australian life insurer, candidates are asked to -

(a) Describe the main features of

  i. the company's overall sales and lapse (KU)

  ii. the impact of introduction of the intermediary as a new sales outlet on the sales and lapse experience (SJ)

(b) Describe the risks that the company may be exposed to as a consequence of the intermediary's contribution to the experience (CJ)

and

(c) Outline the strategies the company should consider in determining its response to the risks in (b) (CJ)

Part (a) of this question was straight forward and the markers commented that the marks allocated for this part of the question was excessive. In addition, parts (i) and (ii) were quite similar, so most students struggled to separate the 2 components adequately, and make sufficient comments to obtain strong results. Overall, almost all students were able to recognise the obvious trends in the data, but there was generally a lack of sufficient points made or detail provided to obtain high marks.

Part (b) of this question was generally not answered very well for the following two reasons. The first is that many students failed to 'discuss' the risks, and instead just listed them. As a result, it was difficult to assess whether the student understood what these risks were. The second is that most students understood the 'pricing risk' but failed to appreciate the broader business risks in their responses.

For part (c), most students failed to provide sufficient detail in their response to demonstrate their understanding, and as a result, the question was not answered particularly well.

Question 4 (18 Marks)

This question looks at the merger of two life insurers, one offering Ordinary risk products and the other ordinary savings products. The merged company is considering expanding into the Superannuation market, by offering an investment account product with capital guarantees.

Specifically, the candidate as product actuary is asked to -

(a) Outline the normal process of developing a new product of this type (KU)

(b) Assess the suggested product development approach by the marketing department (CJ)

(c) List the key factors to consider in order to recommend a pricing basis for the proposed product (SJ)

and

(d) Explain how the considerations would be different if the product was investment linked (SJ)

Overall, the question was reasonably well answered, with most candidates picking up the obvious points. The average raw mark was about 11 out of 18, and about half of the candidates were awarded a pass grade. The difference in average mark between the two markers was about 0.5. The standard deviation was about 2.8, indicating the question had moderate discriminating power. General comments on the answers:

- In part (a), about half the candidates recognised this as a bookwork question on the ten stages of product development, and got close to full marks. Those who didn't know their bookwork so well tended to produce answers which were overly focussed on product design and ignored other aspects. A few candidates made comments about reinsurance – a clear indication that they were simply reproducing the course notes without thinking about the question.
- Parts (c) and (d) produced lower average marks than (a) and (b), with some candidates not understanding the distinction between the pricing basis and the product design. The allocation of marks in the marking guide for this section made it very difficult for candidates to score full marks, even with a good answer. From the markers' perspective, the model solution seemed to expect points which weren't prompted for by the question.
- A number of candidates were worried about anti-selection in the timing of lapses (based on investment conditions), but didn't realise that poor investment returns would be just as damaging for business that remained inforce.
- A few of the better candidates were able to earn additional marks by commenting on the use of investment fluctuation reserves or other methods for handling capital guaranteed returns.

Question 5 (16 Marks)

In this question candidates, as the pricing actuary, are required to determine the economic assumptions to be used in pricing a portfolio of individual Disability Income policies. Candidates are giiven information on the calculated claims indexation rate and earning rates for the last 4 years and the management accounts for this product for the 2006 calendar year. Information regarding the economic assumptions used in the previous pricing basis is also provided.

Specifically candidates are asked to -

a) Calculate the earning rate (KU)

b) Assess the suitability of using historic claims indexation rates as the assumed claims indexation rates in pricing (SJ)

c) Consider whether the earning rate for pricing purposes should be based on the active lives and the disabled lives reserves, or just the active lives reserve (CJ)

d) Discuss the effects that a reduced termination rate (from expected) has on the policy liabilities, assets backing these liabilities, and the benchmark allocation for assets backing this product (SJ)

e) Make recommendations regarding the pricing assumptions to be used for the economic inflation rate, earning rate and risk discount rate (CJ).

Overall, candidates found the question difficult and a number interpreted parts of the question incorrectly. In general, responses were very disappointing and many candidates clearly did not understand how the economic assumptions would be set in the pricing of a DII policy.

Part (a) - Poor attempt at a simple calculation and few candidates achieved full marks. A common mistake was not deducting investment revenue in the denominator, but there was a variety of formulae presented. Nearly all answers did not define the terms in the formula thereby forfeiting ½ a mark (but to be fair, the question only asked for a calculation, not a formula or definition).

Part (b) - Most candidates missed that this question was after a discussion about the suitability of the calculated claims indexation rate for determining the pricing assumption and simply did not answer the question asked. Quite a few discussed what rate the pricing assumption should be (eg 2.5%) rather than explaining the reasoning used in setting the assumption and why the assumption might be different to the calculated indexation rates.

Many candidates recognized that the past experience is not necessarily a guide to the future, and the impact that large claims may have on the claims indexation measure, while few discussed that short term claims may skew the data and the timing differences between when claims are indexed will influence the indexation rate. Points were also awarded for mentioning that the pricing assumption should be based on claims indexation levels specified in the policy document.

Part (c) – This part was very poorly attempted, and was the worst answered part of the question. Again, a significant portion of the candidates did not understand that the question was interested in determining the earning rate to be used in pricing the DII product, not for the valuation. Most solutions addressed the longer durations of assets of the disabled life reserves compared to the active lives reserve and the different asset allocations being required from a valuation perspective but did not consider how a pricing assumption would be set.

Part (d) – This part was the best answered. Almost all answers recommended a change in asset allocation but also mentioned valid points relating to asset duration and short term liquidity needs. Most answers mentioned that the policy liability would increase but ignored any comment on the effect on the assets. There were lots of relatively easy marks in this question if candidates had answered the question directly, identifying that the question was after comments on each of the liabilities, assets and the benchmark allocation of assets.

Part (e) – This part was reasonably well answered, with easy marks available if all the assumptions were addressed and explained. Most candidates recommended appropriate inflation and earning rate assumptions but there was a mixture of responses for the RDR assumption. Some candidates confused the Risk Discount Rate and the Risk Free Rate, or did not understand what the RDR was used for, recommending that the RDR be reduced in light of increased uncertainty. Few candidates mentioned that the RDR will be selected by the Board.

Question 6 (17 Marks)

Candidates found this question difficult as seen by the low pass mark of 26%. In this question, candidates are presented with a scenario faced by the retail product actuary of a life company that has a significant block of Whole of Life and Endowment policies.

This portfolio of policies had markedly reduced sales since 1992, but in the last 3 to 4 years, the sales have increased significantly. The main source for these sales has been endowment policies that have been used for insurance against mortgage loans. Intermediaries who receive large initial "up front" commissions and over-riders have encouraged policy owners to take out policy loans equal to 90% of the policy's surrender value. Illustrations by intermediaries have indicated that increases in surrender values would be sufficient to the interest on the policy loan and the annual premium.

Candidates were provided with a table comparing the illustrated and actual surrender values and the asset share for the first 5 years of a 'benchmark' policy. They were asked to -

(a) Describe the main features of the table provided and the likely reason for these features (SJ)

(b) Implications of the features in (a) on the surrender value basis for this block of business (SJ)

(c) Implications for the profit distributions via bonuses on its traditional business (CJ)

and

(d) Explain the main risks and issues that the current situation might raise for ELL and the retail product actuary (CJ)

Part (a) of this question was poorly answered and most candidates did not demonstrate an understanding of traditional business, bonuses and policy loans. A number of candidates incorrectly suggested that mortality may be the cause of the problem.

For part (b), many candidates incorrectly believed the company was insolvent because the surrender value was less than asset share. No candidate referred to supportable bonuses for the new tranche of business or the lapse assumptions used in the premium basis. Some candidates commented on controlling the expenses rather than the surrender value basis or bonus rates.

Part (c) was also poorly answered with very few candidates commenting on the impact of early surrenders on the profitability of this business.

In Part (d) many candidates did not know the difference between APRA, ASIC and the ACCC Candidates did not detail the risk and issues as they related to this product and sales information. Candidates also did not adequately discuss the Retail Actuaries responsibilities. Most candidates did not make any recommendations or suggestions that as the "new" product actuary they would actually do investigations or confirm the premium basis.

Puvan Arulampalam
Chief Examiner – Life Insurance Course 2A, May 2007 exams
13th June 2007

Subject 2B: Life Insurance

1. Summary

1.1. Pass Rates

The May 2007 examinations represent the fifth examination session under the new Part III syllabus of the Institute of Actuaries of Australia (which involves twice yearly exams of a split course). There were 38 Candidates enrolled for the 2007, Semester 1, Module 2B – Life Insurance exam. Of these, 1 did not present at the exam. The assessment comprised one assignment worth 15%. The exam comprised the remaining 85%.

It is proposed that 8 Candidates be awarded a pass, which implies a pass rate of 22%. A comparison with pass rates from previous exams is set out in the table below.

	Pass Rate
May 2007	22%
November 2006	41%
May 2006	32%
November 2005	29%
May 2005	50%
November 2004	18%
November 2003	28%
November 2002	38%

The pass rate for May 2007 is low when compared with other semesters, which is disappointing. Overall, it was felt on review that the exam was somewhat more challenging than previous semesters, however even taking this into account the general quality of student responses was comparatively below average this semester.

1.2. Candidate Numbers

The Candidate numbers can be summaries as follows:

Table 1 – Candidate Numbers

	Number of candidates
Originally enrolled	38
Absent from exam	1
Presented at exam	37
Passed	8
Failed	29

The analysis by examination centre is as follows:

Table 2 – Analysis by Examination Centre

Centre	Presented	Passed	Pass Rate May 2007	Pass Rate Nov 2006	Pass Rate May 2006	Pass Rate Nov 2005
Sydney	21	5	24%	47%	17%	46%
Melbourne	5	1	20%	33%	0%	0%
Brisbane	2	0	0%	33%	0%	0%
Canberra	0	0	n.a.	100%	0%	0%
Hong Kong	3	0	0%	0%	33%	0%
Singapore	2	1	50%	50%	67%	0%
Malaysia	0	0	n.a.	n.a.	n.a.	33%
New Zealand	1	0	0%	n.a.	100%	0%
United Kingdom	1	0	0%	n.a.	100%	100%
Other*	2	1	50%	n.a.	n.a.	n.a.
Total	37	8	22%	41%	32%	29%

* Temporary exam centres for students unable to sit their exam at a major centre

2. Examination Administration

2.1 Examiners

The examiners for this semester were:
Chief Examiner: Mr Anthony Carey
Assistant Examiner: Mr Wesley Chan
Assistant Examiner: Mr Stuart Bingham

Course Leader: Mr Bruce Edwards

From a continuity perspective, Wesley Chan was the only member of the examination team who continued on from last semester.

The Course Leader prepared advanced drafts of the exam and the Chief Examiner and Assistant Examiner’s role in this process were principally to review the exam. The interaction between the Course Leader and Examiners continued to work well this semester.

3. Examination Papers and Assignments

3.1 Degree of Difficulty and Course Coverage

The following tables show the distribution of questions and marks by level of difficulty and course coverage:

Table 3 – Degree of Difficulty of Exam

Question	Syllabus Aims	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1	1, 2, 9	6	7	2	15
2	1, 2, 3, 6	0	8	8	16
3	4, 6, 10	6	8	5	19
4	1, 2, 5, 7	0	6	14	20
5	1, 5, 12	4	6	5	15
6	6, 7, 8	5	3	7	15
TOTAL		**21**	**38**	**41**	**100**

Based on the table above, it is noted that Questions 2 and 4 out of all the exam questions had the heaviest emphasis towards SJ and CJ type marks, with little or no KU type marks. Students found Question 2 to be very challenging, with only one candidate passing this question on initial marking. Question 4, however, resulted in a good spread of marks and hence was considered to be the best differentiators of better candidates.

The overall degree of difficulty is well within the permissible range of +/-5, as against the target spread of 20/40/40. The overall quality of responses, however, seems to suggest that students found the exam more challenging than expected.

3.2 Overall Performance

The overall performance in the exam was considered quite disappointing. While in hindsight, the examiners do believe that the exam was somewhat more challenging (particularly in relation to question 2), it was still felt that the general quality of responses was relatively weak.

As a general comment, many students either did not relate their answers back to the specific situations or products used in the questions, or covered very few different points in their answers (i.e. explaining in detail a couple of points rather than describing several different points where this was required).

3.3 Question by Question Analysis

Question 1 (15 Marks)

This question asks the candidate to consider the method of setting the policy liabilities and recognising profits for an organisations new group risk insurance product. Specifically, the candidate as valuation actuary is asked to

a) Considering a projection method for calculating the margin on services policy liabilities, outline their approach to the liability calculation for the initial valuation of the group risk insurance policy, including identifying any special assumptions they might need, and their choice of profit carrier, with reasons. (50% KU, 50% SJ)

b) Considering an accumulation method, outline their approach to the liability calculation for the initial valuation of the group risk insurance policy. (KU)

c) List the relative advantages and disadvantages of the projection and accumulation methods for the group risk insurance policy and what their preferred method was, with reasons. (SJ)

d) Describe the main differences in profit recognition between the margin on services method and the embedded value method for the group risk insurance policy and what the implications of these differences may be. (50% SJ, 50% CJ)

The overall results for this question were as follows:

Overall, the question was not as well answered as expected, with only 30% of candidates awarded a pass grade. While the question should not have been difficult to answer (with a mix of KU & SJ components), it would likely have hard to receive full marks and some candidates appeared struggle with the Group Life product concept.

Part (a)

- Most candidates were able to give a reasonable approach to the liability calculation, though surprisingly few mentioned details such as the risk free discount rate.
- While fairly easy marks were on offer for describing the calculation of BEL, PM and PL, not many candidates described all three.
- Most candidates chose a profit carrier with a reasonable explanation.
- What was least well answered were assumptions relating to the specific nature of Group business - no one mentioned more than two aspects.
- Half a mark was awarded if candidates mentioned the allocation of expenses between the Risk and Superannuation components of the product.

Part (b)

- This part in general was not answered well, though most candidates mentioned DAC in some form. Not too many specifically discussed unexpired risk or IBNR and other claims reserves.

Part (c)

- Generally answered very well, with most candidates giving a good reason for their choice of method.
- Very few mentioned that the projection method automatically satisfies the Valuation standard.
- Half a mark was awarded for saying that an advantage of the projection method was that the resulting expected cash flows could be used for comparing with actuals.

Part (d)

- This part had two subparts, with most candidates giving good discussion of the differences between EV and MoS. However relating these differences to the specific product in question was not answered as well (an analogous repeat of part (a)).
- Most candidates failed to pick up that the product is reasonably profitable, and the consequences of this on EV profit in the early years, or that the overall capital requirements are modest in this case
- Half a mark was awarded for stating that EV will be more volatile.

Question 2 (16 Marks)

This question looks at the performance of a unit linked, single premium, ordinary balanced investment product, with a guarantee of returning the initial investment less fees after 5 years, where subsequent investment performance has been poor such that the guarantee is now being called for surrendering business issued in 2001. Specifically, the candidate as appointed actuary, is asked to

a) Estimate the accumulated loss of offering this option for the 2001 business, and for the subsequent business. (SJ)

b) Discuss what principles would apply in valuing this option in accordance with AS 1.04 for the 2001 business, and for the subsequent business (SJ)

c) Given the experience, discuss how they would investigate whether the assumptions used in determining the option fee were still appropriate (CJ)

d) Assuming concern about the impact of a further fall in share prices, discuss what actions they would suggest in the short term to protect the company against further option losses (CJ)

While this question was felt to be the most challenging on the paper, it was still expected that candidates could achieve a pass grade. Unfortunately candidates almost universally struggled with the question, with answer quality generally quite poor, as demonstrated by the low pass rate and average score.

Part (a)

- Most candidates were able to perform the simple calculation to determine the accumulated loss for the 2001 business.

- However, for the subsequent year's business, most students either answered that there was an accumulated profit or a zero accumulated loss. This was despite the fact that the current account value was less than the surrender value that would have applied if the policy had been in force for 5 years. This shows a significant lack of judgement in not providing for potential future losses.
- One mark was given to students who correctly calculated the accumulated loss for the 2001 business and two additional marks were allocated to those who derived an estimate for the subsequent business and provided a reasonable explanation of the basis of the estimate

Part (b)

- Most students got the point that the option needs to be valued and allowed for in the policy liability. However, few mentioned the importance of key assumptions such as lapse rates.
- Some students correctly suggested using stochastic modelling to value the embedded option value. However, many suggested the use of the Black-Scholes model, which may be inappropriate given the inappropriateness of the assumptions underlying the Black-Scholes model with regard to the product in question.

Part (c)

- The question asked whether the assumptions used are still appropriate but many students went straight to whether the option fee is appropriate.
- Many students focused on the investment returns assumptions only and not the lapses. Furthermore, many students reviewed their assumptions but did not go further with what they would do with them. Many missed that it makes sense to go and check whether the "correct" or expected fee is the actual fee.

Part (d)

- This was generally the best answered of the four parts of this question with most candidates scoring 3 or more of the 5 marks available. This part of the question was the best differentiating tool for question 2.
- The most common answer offered by candidates outside the solutions was to undertake a portfolio insurance / dynamic hedging programme to hedge the downside risk – this is quite common practise with similar products issued in North America and hence was awarded a mark.
- Many students suggested increasing "reserves" by injections into the statutory fund out of shareholder funds. Students should note that this action will not affect the policy liability, and since the profit or loss of the embedded option forms part of the policy liability, injections of capital from the shareholders fund will have no effect on the losses made by this option.
- Some students offered suggestions along the lines of changing the guarantee significantly, removing the guarantee altogether or adding additional fees (beyond changes to the fee charges for the capital guarantee). Whilst desirable, few pointed out that it would be very unlikely to be possible as the terms of the guarantee would be detailed in the product disclosure statement.

Question 3 (19 Marks)

Asks the candidate to calculate the solvency requirement for a company selling retail lump sum risk insurance based on numbers provided, and answer a number specific question raised by the companies CFO. Specifically, the candidate is asked to

a) Calculate the Solvency Requirement showing clearly the steps required as set out in the Solvency Standard (AS2.04). (KU)

b) Draft a memo to the CFO giving answers to each of his following questions:
   (i) Why the Policy Liabilities for these products are negative.
   (ii) Why the Solvency Liability is the same as the Policy Liability even though the assumptions used to calculate the Solvency Liability are more conservative than those used to calculate the Policy Liability.
   (iii) Why there is a Resilience Reserve requirement even though the assets of this Statutory Fund are entirely invested in cash.
   (iv) Why there is an Inadmissible Assets Reserve even though there are no significant counterparty risks and no investments in related companies in this Statutory Fund. (mix of KU, SJ & CJ)

c) Draft a reply to the CFO explaining how the Capital Adequacy Requirement for this Fund could be the same as the Solvency Requirement. (SJ)

d) Outline the main points they would make to the CFO on his suggestion that the companies surplus reinsurance program may not be effective and that the company's retention level should be increased given that on best estimate assumptions the actual / expected claims ratio for the business reinsured is lower than the ratio for the business retained. (CJ)

This question was fairly straightforward, and was generally well answered by candidates, with the highest proportion of passes awarded of all questions.

Part (a)

- The candidates generally answered this question very well. Some made minor calculation errors but got most of the marks. So this question was not a very good differentiator.

Part (b)

- An extra half mark was awarded for mentioning the Solvency Reserve has a minimum of the Policy Liability. Marks were not deducted for not mentioning asset concentration as a reason for holding the IAR because it was not relevant to the question.
- Only one student did not write in the correct format. This question was a good differentiator between a B grade and a C grade candidate. A C grade student generally would not have passed, while a borderline student would have received about half the marks. An A grade student did not have trouble passing this question.

Part (c)

- Only awarded half marks for stating the Expense Reserves and New Business Reserve but not giving an explanation. No marks were deducted for not mentioning RR or IAR because they were not relevant to the question. Half a mark was awarded that the Capital Adequacy Requirement has a minimum of the Solvency Requirement.
- This question provides a very good indicator of the candidate strength when considered in conjunction with Part (d).

Part (d)

- Half a mark was awarded for commenting that reinsurance helps to reduce claims volatility and smooth profits.
- This question was answered poorly in general and provides a good indicator on candidate strength when considered in conjunction with the performance for Part (c).

Question 4 (20 Marks)
Asks the candidate to review the experience, from the data provided, of a closed block of lifetime annuity business, which is in loss recognition, and answer a number of questions posed by the companies Chief Accountant. Specifically:

(a) Analyse the profit between investment income on the excess assets, the planned profit, and the experience profit and further analyse the experience profit between investment earnings, management expenses and mortality. (SJ)

(b) Comment on the likely causes of this year's experience and the considerations involved in changing the best estimate of each assumption to potentially reverse some of the loss recognition. (CJ)

(c) Briefly explain to the CA why losses cannot be reversed when the previous year's embedded value report attributed substantial value of in-force business to the annuity portfolio (CJ)

(d) Comment on whether either outsourcing the annuity payment process (with the prospect of substantial expense savings) or changing the investments to good quality corporate bonds with higher credit risk margins than the current investments would be effective in reversing the loss recognition, and what general considerations would apply in each case. (CJ)

General comments on the answers:

Part (a)

- The solutions envisaged that the full actual Investment Earnings on the Excess Assets had been deducted from the profit for the year, so that only the remainder was counted as experience profit. Some students had deducted only the expected investment income on the Excess Assets and therefore calculated a slightly higher Investment profit. It was decided that this would be worth 1.5 out of 2 marks.

- This question was generally well answered

Part (b)

- This question was fairly poorly answered.
- Most students did not mention credit risk margins, however as the question stated that the Investments were in "….long dated fixed interest securities issued by government enterprises…..". it was felt that students could legitimately interpret these Bonds to be risk free

Part (c)

- Most students got the 1 mark for recognising that the substantial VIF was due the release of the capital margins. Few mentioned that annuities were capital intensive.

Part (d)

- The expense part of the question wasn't answered as well as the Investment risk. Most students correctly said that BE expense assumption could be reduced if the expense reduction is demonstrably sustainable but very few got the other points.

- Marks were awarded for students mentioning that BE assumptions should remain unchanged irrespective of the investment strategy adopted and therefore loss recognition will be unaffected.

Question 5 (15 Marks)
This question relates to an Asian life company selling traditional business and asks the candidate, as the valuation actuary, to:

a) Determine the supportable bonus rate for the product using the data provided (KU)

b) Identify the issues considered when setting the current year's bonus rate for the product (SJ)

c) Outline three ways in which the interests of the participating policyholders could be compromised after a proposed purchase of the company by a competitor and suggest two alternative methods of providing protection for these policyholders in the purchase agreement. (CJ)

General comments on the answers:

Part a)

- Students were generally comfortable with applying the formula to determine the relationship between VSA and PL.
- Surprisingly many students did not take shareholder margins into account, which resulted in identifying a supportable bonus rate that was too high.
- Errors made in adjusting for the 25% include:
    - applying the 1.25 factor to only CYSB or FYSB but not both
    - multiplying by 0.75 instead of dividing by 1.25

Part b)

- It was relatively easy for students to gain marks by just stating the 'bookwork' issues to consider. Students who listed issues without explanations did not receive full marks for each issue.
- A lot of the discussions surrounding the issues were general in nature. We would have expected more students attempting to relate these issues back to the information provided in the question.
- Very few students mentioned shareholder considerations or economic outlook.
- It was rare for students to provide more than 4 different issues even though 6 marks were available.
- Any discussion on 'local legislation' or 'potential deviation from the 80:20 rule in Asia' was awarded half a mark

Part c)

- Students had difficulty in identifying three ways in which the par policyholders could be compromised.
- Most students were able to suggest ring fencing or maintaining the business in a separate SF as a way to protect policyholder’s entitlement, but struggled to come up with a second method.
- Additional half marks were awarded for mentioning changing the investment strategy, and increasing the shareholder portion of profits given that the company is located in Asia and the legislative requirement of 80:20 does not hold
- Specifying an expense allocation in the agreement, either subject to a maximum or according to some predefined rules was awarded additional part marks

Question 6 (15 Marks)
This question relates to the sale of a life company that has not been achieving satisfactory results (negative value of new business) where the candidate has been engaged as a consulting actuary to answer a number of questions and concerns the current owners have. Specifically the candidate is asked to:

a) Estimate the embedded value of the company using only the past data provided, explaining each step and stating clearly the assumptions made. (KU)

(b) Explain how the negative value of new business arises and its implications for a prospective buyer. (SJ)

(c) Provide advice as to how to fix the negative value of new business in the short term, setting out the steps to take to assist the owners in addressing this issue. (CJ)

This question was generally not well answered by candidates, which was disappointing as the concepts covered should not have been unfamiliar and there were a mix of KU, SJ & CJ components in the question.

General comments on the answers:

Part (a)

- Most students gained some credit for the embedded value roll-forward calculation. However, with very few exceptions, students did not state any of the assumptions that underlie such a roll-forward.
- Typical errors on the calculation side were use of the risk discount rate to roll-forward net worth or use of the net investment return to roll-forward the value of in-force.
- A significant number of responses did not unwind the risk discount rate when allowing for the impact of new business on the roll-forward.

Part (b)

- Responses were generally below standard.
- Few students clearly explained that the negative value of new business arises as the internal rate of return on the capital invested is less than the risk discount rate used in the calculations. The business may still be profitable, but not making the level of return the shareholder requires.
- Almost without exception the choice of new business multiplier was not noted.

Part (c)

- Most students gained some credit for this part.
- However, again responses were generally below standard in that not enough possible actions were included. Instead there was often repetition related to particular areas (e.g., three or more points on the topic of expenses).
- In other cases topics were mentioned without demonstration of a reasonable understanding of the implications (e.g., citing of financial reinsurance as an option to consider without any supporting discussion).

Subject 3A: General Insurance

1. Summary

1.1. Pass Rates

67 candidates enrolled for the 2007, Semester 1, Module 3A exam. Of these, 3 withdrew and therefore did not present at the exam. The assessment comprised one assignment worth 15%. The exam comprised the remaining 85%.

It is proposed that 24 candidates be awarded a pass, which implies a pass rate of 38%. This compares with a pass rate of 38% for the 2006, Semester 2 exam.

1.2. Candidate Numbers

The Candidate numbers can be summaries as follows:

Table 1 – Candidate Numbers

	Number of candidates
Originally enrolled	67
Absent from exam	3
Presented at exam	64
Passed	24
Failed	40

The analysis by examination centre is as follows:

Table 2 – Analysis by Examination Centre

Centre	Presented	Passes	Pass Rate (full subject)
Brisbane	1	0	0%
Melbourne	4	3	75%
Perth	1	1	0%
Sydney	49	17	35%
Subtotal: Australia	55	21	38%
London	5	1	20%
Malaysia	1	0	0%
Singapore	2	1	50%
USA	1	1	100%
Subtotal: International	9	3	33%
Total	**64**	**24**	**38%**

2 Examination Administration

2.1 Examiners

The examiners for this semester were:
Chief Examiner: Laurel Kong
Assistant Examiner: Albert Napoli

2.2 Course Leaders

The Course Leaders were Dave Finnis and David Heath.

3. Examination Papers and Assignments

3.1 Degree of Difficulty and Course Coverage

The following tables show the distribution of questions and marks by level of difficulty and course coverage:

Table 3 – Degree of Difficulty of Exam

Question	Subpart	Unit	Aim	Marks	KU	SJ	CJ
1	a	1	3d	1	1		
1	b	1	1a	10		10	
1	c	3	7c	3			3
1	d	1	1a	3	3		
1	e	3	7c	3		3	
2	a	3	7c, 7d	2	1	1	
2	b	3	6a	6		6	
2	c	3	7b, 7d	2			2
2	d	3	7c	2	2		
2	e	3	6a, 7c	2		2	
2	f	3	6a, 7c	1		1	
2	g	4	8f	3	3		
3	a	2	4c	2			2
3	b	2	4a	5			5
3	c	2	4a	2		2	
3	d	2	4a	7		3	4
3	e	2	5a, 5c	5		5	
4	a	4	8b	3			3
4	b	4	9b, 1c	8		4	4
4	c	4	9d	2	2		
4	d	4	8b	1	1		
4	e	4	8b	2	1		1
4	f	4	8b	4		1	3
5	a	3	7d	2		2	
5	b	1	3d	1		1	
5	c	1	3d	1	1		
5	d	1	3d	7		3	4
5	e	1	3e	3	2		1
5	f	1	3d, 3e	4			4

5	g	4	8b	3			3
5							
Total				100	17	44	39

3.2 Overall Performance

In setting the paper, the intention was to have a consistent level of difficulty with previous papers. However, the exam has proven relatively straightforward, with this showing clearly in the results.

The average raw exam mark this semester was 104, relative to 85 for the November 2006 examination, 100 in the May 2006 examination and 86 for the November 2005 examination. The raw marks in each of the six exam questions ranged from 47% to 59%, which is at the higher end of the November 2006 examination which ranged from 29% to 58% of the total marks available. This appears to compare more closely with the May 2006 exam (43% to 55%), but is high relative to the November 2005 paper (26% to 57%).

No particular question stood out as having particularly poor responses, although Question 1 appeared to be the most straightforward, based on the pass rates.

There is more detail in the question by question analysis below, however some knowledge areas where there has been some general weakness in this exam include:

- knowledge of reserving techniques, including alternatives to the PCE and in particular PPCF in operational time
- understanding of compensation schemes, in particular the links between duration of benefit types and the impact on outstanding claims
- the relevance of catastrophes to selecting premium liability loss ratios (which varies by class)
- the difference in payment patterns between gross claims and reinsurance recoveries
- the purpose of a sensitivity analyses and relevant items to test
- understanding of accounting concepts and profit impacts of one-off changes

3.3 Question by Question Analysis

QUESTION 1 (20 MARKS)

Course coverage: Units 1 & 3, Syllabus Aims 1, 3 & 7
Mark allocation: Knowledge and Understanding – 4 marks
Straightforward Judgement – 13 marks
Complex Judgement – 3 marks

This question asked students to assess insurability of potential products, and then consider reserving issues related to one of these products, as well as medical indemnity.

Part a) Responses were fair. A reasonable number didn't mention the main point (that not issuing insurance would result in no funds being available for investment). A number also made sensible comments about stages of the insurance cycle.

Part b) Responses were generally good. This part was worth the most marks. The majority of candidates listed criteria for insurability and made sensible comments relating to the two products. Some didn't specifically address the list of criteria but did make sensible comments and were awarded part marks. The majority (correctly) regarded the first product as insurable and the second as uninsurable.

Part c) Reponses were fair. Some candidates merely wrote a list of generic points relating to doing a valuation without specifically addressing issues relating to these products. Most identified the lack of experience as an issue in setting reserves. Whilst most recognised the lack of experience very few recognised that there would be some experience already reported.

Part d) Responses were generally good. Most candidates described claims made and incurred policies and correctly identified that claims made policies had no IBNR.

Part e) Responses were relatively poor. The question may have been a little unclear - a number of candidates didn't realise that the question was focussing on the notification data. For those who did grasp this marks were relatively easy to achieve.

Final grades were distributed as follows:

i. Strong Pass (A) – 7 candidates
ii. Pass (B) – 27 candidates
iii. Slightly Below Standard (C) – 17 candidates
iv. Weak (D) – 11 candidates
v. Showed Little Knowledge (E) – 1 candidate
vi. Did Not Attempt (X) – 1 candidate

QUESTION 2 (18 MARKS)

Course coverage:	Units 3 & 4, Syllabus Aims 6,7 & 8
Mark allocation:	Knowledge and Understanding – 6 marks
	Straightforward Judgement – 10 marks
	Complex Judgement – 2 marks

In this question candidates were asked to calculate components required for the PCE method, as well as understand the limitations of this method and when other methods may be more suitable. Students were also required to explain the difference between a central estimate and a provision.

Most students did well in part a) and part b). Part b) in particular was quite straight-forward and most students did well in calculating PO and CED factors. A lot of students didn't read the question properly with regards to the inflation and discounting however and were often out by half a period.

Answers for part c) differed greatly between students. A lot of students suggested removing the large claim from the PCE analysis but a lot also struggled with how to deal with the large claim appropriately.

Answers to part d) were fairly average. Most students realised that PCE was not good for recent accident years due to the high proportion of IBNR claims but struggled to find other answers.

Candidates seemed to not understand the question very well. A number of different methods were raised that were not relevant to the situation.

Part f) was disappointing in that many students did not realise that application of operational time would allow for changes in speed of finalisation.

In part g), most candidates could get at least 2 items that should be allowed for in deriving a claims provision. A number of students talked about large claim loadings, IBNR and IBNER which should already have been allowed for.

Final grades were distributed as follows:

i. Strong Pass (A) – 3 candidates
ii. Pass (B) – 21 candidates
iii. Slightly Below Standard (C) – 16 candidates
iv. Weak (D) – 16 candidates
v. Showed Little Knowledge (E) – 7 candidates
vi. Did Not Attempt (X) – 1 candidate

QUESTION 3 (21 MARKS)

Course coverage:	Unit 2, Syllabus Aims 4 & 5
Mark allocation:	Knowledge and Understanding – 0 marks
	Straightforward Judgement – 10 marks
	Complex Judgement – 11 marks

This question tested students understanding of compensation schemes and the impact the introduction of common law would have.

Part a) was answered quite poorly given that answers could have suggested either an increase or decrease in mean term as long as the answer was justified.

In part b), most students were only able to achieve partial marks. A few students scored poorly by not answering the question and simply listing as many points as possible that might affect that benefit type without relating it to how it contributes to the relative proportions of liabilities shown.

Part c) was answered poorly. Many students did not relate the comment back to the impact on the Estate and relatives.

In part d), a lot of students did not make enough points for the first section. Most gave good answers to the second and third parts to the question.

Most students were able to achieve some marks in part e) but struggled to cover enough points.

Final grades were distributed as follows:

i. Strong Pass (A) – 6 candidates
ii. Pass (B) – 20 candidates
iii. Slightly Below Standard (C) – 25 candidates
iv. Weak (D) – 7 candidates
v. Showed Little Knowledge (E) – 5 candidates
vi. Did Not Attempt (X) – 1 candidate

QUESTION 4 (20 MARKS)

Course coverage:	Unit 4, Syllabus Aims 1, 8 & 9
Mark allocation:	Knowledge and Understanding – 4 marks
	Straightforward Judgement – 5 marks
	Complex Judgement – 11 marks

This question asked students to consider issues relating to selection of loss ratios and coefficients of variation for premium liabilities, as well as diversification benefit.

Part a) appears to have been misunderstood by many students, who tended to comment on the results of the approach suggested, rather than the approach itself.

Part b) tested assumption making with a requirement to justify the assumptions made. Those candidates who identified trends in the data and made compelling justifications of their answers were considered to display a sound understanding. A number of answers took simple averages across the whole range of accident years stating as justification that the portfolio is long tail –this showed little understanding. Some answers mentioned large claims/catastrophes in the historical data but then failed to add this loading in the selected loss ratios.

Part c) was reasonably answered, with some students identifying obvious points such as premium rate changes, and fewer identifying the use of pricing loss ratios or information on large claims as relevant.

Part d) A common issue for this section were answers that were too brief to fully convey the key points.

Part e) was generally well answered, although some students completed the calculation but did not provide a view on the level of diversification benefit.

Part f) was generally well answered, although some methods of allocation required more thought, for example, even allocation across classes. Also, some students seemed to give up marks by only completing one allocation method or not commenting on differences between the two.

Final grades were distributed as follows:

i. Strong Pass (A) – 6 candidates
ii. Pass (B) – 22 candidates
iii. Slightly Below Standard (C) – 15 candidates
iv. Weak (D) – 9 candidates
v. Showed Little Knowledge (E) – 9 candidates
vi. Did Not Attempt (X) – 3 candidates

QUESTION 5 (21 MARKS)

Course coverage:	Unit 1, 3 and 4, Syllabus Aims 3, 7 & 8
Mark allocation:	Knowledge and Understanding – 3 marks
	Straightforward Judgement – 6 marks
	Complex Judgement – 12 marks

This question was substantially a numerical question, asking students to determine various numbers that might be disclosed in notes to the accounts. Issues considered included estimation of discounting, split into current and non-current liabilities and identification of central estimate and risk margin components.

Part a) was generally well answered, although it was an area that students either understood or didn't. Some students appeared to be looking for clues in the question, rather than simply identifying key metrics for a workers compensation portfolio.

Part b) required calculation of a mean term, which students either understood or didn't. There was some evidence that at least one student did not understand what a mean term meant. This is a relatively basic concept.

Part c) was another area which students either knew or didn't. The most common error was with respect to confusion between the current and non-current split required for accounting purposes, and the current and prior split which actuaries might be more used to seeing.

Part d) was generally well answered, the most common issue being not commenting if it was reasonable to assume gross, recoveries and net had the same mean term (most candidates stated this as an assumption, and only the better candidates went further to explain it would be expected that recoveries would have a longer duration). Some candidates also had difficulty in dividing the net outstanding claims by 1.15 (instead multiplied by 0.85) to obtain the central estimate.

Part e) was reasonably well done, being mainly book work, although few candidates commented correctly if the class was profitable.

Part f) was reasonably straightforward, although there was some confusion as to whether the question asked for comment on the impact of change in coefficient of variation or probability of sufficiency. Either approach was awarded marks. Few students understood the final point on forecast profit, with a common mistake being to expect that any increase in margin at the current time would release in future periods – this is true but ignores the offsetting impact of margins being established on new claims.

Part g) was poorly done, most candidates missing the main issue here around the volatility and the implications of a change in CoV. Candidates mainly commented on the board's 'risk appetite', the appearance to the market, and smoothing profits.

Final grades were distributed as follows:

i. Strong Pass (A) – 4 candidates
ii. Pass (B) – 17 candidates
iii. Slightly Below Standard (C) – 17 candidates
iv. Weak (D) – 18 candidates
v. Showed Little Knowledge (E) – 6 candidates
vi. Did Not Attempt (X) – 2 candidates

Subject 3B: General Insurance

1. Summary

1.1. Candidate numbers

	Number of candidates
Originally enrolled	49
Withdrew prior to examination	1
Absent from examination	0
Presented at examination	48
Recommended Passes	23
Recommended Fails	25

1.2. Pass rates

The recommended passes correspond to a pass rate of 48% of candidates presented at the examination. This compares to the pass rates in recent sessions as follows:

Year	Semester 1	Semester 2
2006	50%	39%
2005	50%	32%

1.3. Examination centres

Centre	Presented	Passed	Pass Rate
Brisbane	1	1	100%
London	3	0	0%
Melbourne	2	1	50%
Singapore	1	1	100%
Sydney	41	20	49%
Total	**48**	**23**	**48%**
Australia	44	22	50%
Overseas	4	1	25%

2. Examination and Administration

2.1 Examiners

Chief examiner: Don Johnstone
Assistant examiner (exam marking): Brett Riley
Assistant examiner (exam setting): Catherine Luk

2.2 Course leader

Course leader (exam setting): David Heath
Course leader (other duties): Dave Finnis

3 Examination Papers and Assignments

3.1 Degree of difficulty and course coverage of examination

The following tables show the distribution of questions and marks by level of difficulty and course coverage:

Question	What capability is being tested?	Syllabus Aims	Units	KU	SJ	CJ	Total Marks
1a	Risk classification	10	5	2			2
1b	Explain premium rating process to Joe Public	11,12	5		2		2
1ci	Vulnerability vs At-fault	12	5		3	3	6
1cii	Vulnerability vs at-fault vs involvement	12	5			2	2
1d	CTP premium collection methods	11	5		3	4	7
1 Total				**2**	**8**	**9**	**19**
2a	Explain base rate in experience rating system	13	5		2		2
2b	Explain credibility methods	13	5		4	1	5
2c	Workplace splitting	13	5		2	3	5
2d	NCB vs experience rating	12	5	3	1		4
2 Total				**3**	**9**	**4**	**16**
3a	reinsurance in FCR	19	7	2			2
3b	Qld expansion in FCR	19	7		2	4	6
3c	Risk management issue in FCR	19	7		3		3
3d	External peer review	20	8	1	1		2
3e	dissent between Approved Actuary &	20	8		1	1	2

	EPR						
3 Total				**3**	**7**	**5**	**15**
4a	stop loss reinsurance	15	6	1	3		4
4b	internal capital models & target capital	17	7		4		4
4c	MER for LMI	15	6	4			4
4d	reinsurer default risk	17	7		2	2	4
4 Total				**5**	**9**	**2**	**16**
5a	claims made	11	5	1	1	2	4
5b	investment policy	14	6		2	1	3
5c	solvency management	16,17	7		4		4
5d	premium calculation	12	5	6			6
5e	reinsurance programme design	15,17	6,7		4		4
5f	profit share design	13	5		2	2	4
5g	new product risks (as identified in FCR)	19	7		2	2	4
5h	portfolio transfer	18	7		2	3	5
5 Total				**7**	**17**	**10**	**34**
TOTAL				**20**	**50**	**30**	**100**
Target				20	40	40	100

Based on the table above, it is noted that question 1 out of all the exam questions had the heaviest emphasis towards SJ and CJ type marks, and was considered to be a good differentiator of better candidates, whereas question 4 was the most straight forward.

The table below shows the course coverage. This semester there were 16 marks relating to experience rating systems, which is more than usual, and only 2 marks assessing risk classification, which is less than usual, but the premium rating unit was well covered overall.

Aim	Description	Marks
10	Risk Classification, Forecasting Techniques	2
11	Understand Premium Rating / Philosophy of Pricing	12
12	Apply pricing principles to practical situations	19
13	Evaluate and apply experience rating systems	16
14	Understand impact of investment policy for GI coy's	3
15	Understand Theory & Phil of RI, prog design, inwards re	10
16	Fin Control of GI incl profit/solvency/invts/fin planning	2
17	Solvency / risk based capital / MCR	12
18	Appraisal Values of GI coys & portfolios	5
19	Understand key risks impacting FC of insurer / prepare FCR	15
20	Actuary's responsibilities under prof and prudential stds	4

Unit	Description	
5	Premium Rating	49
6	Investments / RI & Risk Management	13
7	Financial Control, Appraisal & FCR	34

8	Professionalism	4

3.2 Overall performance

Overall the exam paper acted as a reasonable discriminator, with raw marks ranging from 78 to 144 out of 200. This range was wider than last semester (80 to 131 out of 200). The higher average marks than last semester (113 vs 103) were due mostly to the assignment (75% average raw mark for one assignment worth 15% vs 56% average across 2 assignments worth 20%). Overall student performance was similar to that in prior semesters.

This paper was the first to be written by the Course Leaders, with oversight and significant input by the examiners. The examiners consider that this process gave a paper that assessed candidates' ability to apply what they had learned from the readings to practical situations.

3.3 Question By Question Analysis

QUESTION 1 (19 MARKS)

Course coverage:	Unit 5, Syllabus Aims 10-12
Mark allocation:	Knowledge and Understanding – 2 marks
	Straightforward Judgement – 8 marks
	Complex Judgement – 9 marks

This question examined students' understanding of scheme design issues, particularly different scheme philosophies for allocating cost and alternative bases for levying premiums. Candidates' comprehension of underlying drivers of claim cost and related concepts (e.g. premium relativities) under these different philosophies was also tested.

Part a) required comment on why the premium relativity for taxis was so high, when per kilometre the frequency of accidents is comparable to cars. This was reasonably well answered, with the average mark being 1.0 out of 2. Most students got some marks, from at least one of the two points in the answer.

Part b) asked students to assess a statement that those owning cars and motorcycles are paying too much premium. This was not answered as well as (a), with many students missing the key issues in this part. The average mark was 0.6 out of 2.

Part c) (i) required a discussion of advantages and disadvantages of an at-fault basis, compared to the vulnerability basis outlined in the question. This part of the question represented easy marks but again most students failed to list a good number of points. The question then required commentary on the expected impact on the base premium and relativities for rural car, motorbikes and heavy commercial. Quite a few students forgot to answer some of these parts. The relativity part was answered quite well in general. Several students identified a cross subsidy under the vulnerability basis, when one does not necessarily exist (as the premiums are set based on the scheme philosophy). The average mark was 3.4 out of 6.

Part c) (ii) required candidates to support a basis (at-fault, vulnerability or involvement) and provide justification. Few provided sufficient justification for what should have been a couple of easy marks. The average mark was 0.8 out of 2.

Part d) asked students to provide two alternative bases for charging levies/premiums for the scheme, to provide advantages and disadvantages for each and to assess the usefulness of each approach in limiting environmental impact. Many candidates used the basis “number of kilometres driven in year” without considering or commenting on the practicalities of this approach. Few suggested a levy on petrol, one of the more obvious choices. The arguments for and against were fairly weak in general. The average mark was 3.5 out of 7.

Final grades were distributed as follows:

Strong Pass (A) – 4 candidates

Pass (B) – 16 candidates

Slightly Below Standard (C) – 15 candidates

Weak (D) – 7 candidates

Showed Little Knowledge (E) – 6 candidates

Not Attempted (X) – no candidates.

QUESTION 2 (16 MARKS)

Course coverage:	Unit 5, Syllabus Aims 12 & 13
Mark allocation:	Knowledge and Understanding – 3 marks
	Straightforward Judgement – 9 marks
	Complex Judgement – 4 marks

This question examined students’ understanding of experience rating and industry rates in workers’ compensation. The question tested students on the purpose of a broad factor in the experience rating formula, credibility approaches to setting industry rates, the impact of workplace splitting and the suitability of a no-claim bonus (NCB) system in experience rated workers’ compensation. The markers commented that they found the question was not a good discriminator between stronger and weaker candidates.

Part a) asked students to explain why the broad factor was required in calculating rates for each workplace. This was answered with reasonable competency, with most students receiving some marks. Many candidates noted the requirement for the total premium to be collected to be adequate to pay all liabilities and expenses, but did then not elaborate sufficiently by giving examples (e.g. for pure IBNR, expenses, adjusting for varying experience). The average was 0.9 out of 2 marks.

Part b) required candidates to explain why credibility methods would be used in calculating industry rates, to explain how to do this for a specific ANZIC code and to state any underlying assumptions. In answering “why”, many described how credibility methods work without getting to the fundamental issues in this context – i.e. for stability and equity. The explanations of how were of mixed quality. Few stated appropriate underlying assumptions. Several students described credibility in terms of experience rating, not a hierarchical credibility method for setting industry rates, so missed the point of the question. Most struggled to explain hierarchical credibility, with several using formulae instead. The average was 2.0 out of 5 marks.

Part c) asked candidates to explain why small businesses would be encouraged to split workplaces into blue and white collar workers, and then to assess the impact on various rates (overall scheme levy rate, industry rate for manufacturing, small employer’s own rate, other relevant industry codes). When explaining why, many students gave lofty and well-meaning explanations (e.g. more equitable outcome) rather than the obvious reason to lower premiums. The answers for assessing rates were of mixed quality. The average mark was 2.6 out of 5.

Part d) required students to assess a statement that there is no incentive for small businesses to improve OH&S. Most did this reasonably well. They were then asked to state the advantages and disadvantages of a NCB system in this scheme. The points raised were of variable quality. Most students got some marks and listed at least one of the more relevant points. Several candidates listed generic benefits and drawbacks of NCB systems. Overall, students found this the easiest part of the question. The average mark was 2.3 out of 4.

Final grades were distributed as follows:

Strong Pass (A) – 5 candidates

Pass (B) – 24 candidates

Slightly Below Standard (C) – 15 candidates

Weak (D) – 4 candidates

Showed Little Knowledge (E) – no candidates

Not Attempted (X) – no candidates.

QUESTION 3 (15 MARKS)

Course coverage:	Units 7 & 8, Syllabus Aims 19 & 20
Mark allocation:	Knowledge and Understanding – 3 marks
	Straightforward Judgement – 7 marks
	Complex Judgement – 5 marks

This question examined students' understanding of APRA regulation of general insurers, applied to a company undergoing change and with issues surrounding risk management. Most students did quite well in this question, as the distribution of grades shown below indicates.

Part a) asked students to outline how a company's reinsurance arrangements are taken into account in an FCR. This was straightforward and most students received some marks. Most mentioned reinsurance strategy and MER but fewer mentioned insurer default and limited risk transfer products. The average was 1.2 out of 2 marks.

Part b) required candidates to identify the key issues to be raised in the FCR regarding the change in strategy. Students had to consider the broad areas to be addressed in an FCR and give a reasonable discussion for each to get maximum marks. The overall performance for this part was fairly good, although few mentioned risk management. The average was 3.6 out of 6 marks.

Part c) asked candidates to explain the risk management issues to be raised in the FCR in relation to information provided. Some concentrated on key person risk and did not consider other risks, particularly the reliance placed on the RMS document. The average mark was 1.5 out of 3.

Part d) required students to explain why the Reviewing Actuary requesting the FCR might be considered unusual, and then to explain why they might request it. Most did this well. The average mark was 1.7 out of 2.

Part e) asked candidates how the EPR should deal with a difference between the estimates of the Approved and Reviewing Actuaries. Most suggested discussing the differences with the Approved Actuary but not all were clear about considering materiality and then potentially noting this in the EPR. The average mark was 1.4 out of 2.

Final grades were distributed as follows:

Strong Pass (A) – 5 candidates

Pass (B) – 28 candidates

Slightly Below Standard (C) – 13 candidates

Weak (D) – 2 candidates

Showed Little Knowledge (E) – no candidates

Not Attempted (X) – no candidates.

QUESTION 4 (16 MARKS)

Course coverage:	Units 6 & 7, Syllabus Aims 15 & 17
Mark allocation:	Knowledge and Understanding – 5 marks
	Straightforward Judgement – 9 marks
	Complex Judgement – 2 marks

This question examined students' understanding of reinsurance (in particular stop loss reinsurance treaties) and capital, both the regulatory framework and the underlying rationale for holding capital. Overall we were very disappointed with the standard of candidates responses to the question. This was a very simple question and yet the majority of candidates failed. The pass mark was set at 50% but could easily have been set higher given the number of straightforward marks on offer for this question. A number of candidates also appeared to run out of time suggesting that a lot of candidates left this question towards the end - including some of the candidates who answered the early parts of the question well.

Part (a) asked candidates to explain the effect of stop loss reinsurance on reserve calculations. This was generally poorly answered once anything beyond the central estimate was considered. Most candidates managed to get the net Central estimate. Very few candidates managed to properly reassess the risk margin, simply scaling down the current margin without any understanding of the impact of the stop loss on the 75th percentile. The average mark was 1.9 out of 4.

Part (b) assessed students' understanding of the rationale for holding capital and how it might affect the return on equity. No one wrote a really good answer but most candidates showed some level of understanding. The average mark was 2.4 out of 4.

Part (c) asked for an explanation of MER and how it might be calculated for a portfolio of Lenders Mortgage Insurance. Many candidates got at least 2 marks out of 4, however quite a number were not aware of the specific requirements around LMI insurance. Candidates who applied the general principles of identifying and evaluating concentration risk were still awarded up to 3.5 out of 4 even if they didn't refer to the LMI specific regulatory requirements. The average mark was 2.3 out of 4.

Part (d) asked candidates how to respond in their annual statutory reporting to the breaking news of increased credit risk in one of their reinsurers. This part was answered very poorly. Many candidates automatically assumed that the "sky was falling" and that there should be some substantial changes to reinsurance arrangements, with little or no discussion about the realism of this scenario. Very little appreciation was shown for how long it might take to get a clear picture of a reinsurer's credit risk, nor of the components of the annual statutory reports. The average mark was 1.5 out of 4.

Final grades were distributed as follows:

Strong Pass (A) – 5 candidates

Pass (B) – 17 candidates

Slightly Below Standard (C) – 14 candidates

Weak (D) – 11 candidates

Showed Little Knowledge (E) – 1 candidate

Not Attempted (X) – no candidates.

QUESTION 5 (34 MARKS)

Course coverage:	Units 5, 6 & 7, Syllabus Aims 11, 12, 13, 14, 15, 16, 17, 17 & 19
Mark allocation:	Knowledge and Understanding – 7 marks
	Straightforward Judgement – 17 marks
	Complex Judgement – 10 marks

This question was a case study of a professional indemnity insurance scheme for architects and examined students' understanding of various parts of the actuarial control cycle as applied to this scenario: product development, policy conditions, premium rating, investments, reinsurance, capital, profit sharing, risk assessment and portfolio transfer. Most students handled the premium rating part quite well but struggled a bit with the broader portfolio management parts.

Part a) asked students what policy conditions might be applicable and what exposure measure might be used in the calculation of premiums. Most students made a reasonable attempt at the exposure measure but there was a poor understanding shown of what was meant by policy conditions or what conditions might be applicable here. This part of the question was therefore not a very good discriminator with marks ranging from 1 to 3.5 out of 4, with an average of 2.1.

Part b) required candidates to identify suitable investments to back this product. This was answered poorly, with many students failing to correctly identify the long tail nature of the portfolio despite it being on a claims made basis. Many candidates over-rated the short term cashflow needs, whereas at the other end of the spectrum quite a few who recognised the long term, inflation-linked nature of the liabilities recommended 100% in equities, not fully appreciating the risk return trade-off. Not many students picked up the link between the property investment market and the liability portfolio being a big disincentive to investing in property. The average was 1.8 out of 3 marks.

Part c) asked candidates to discuss capital, solvency and profit margin. This part proved to be a good discriminator with a wide range of understanding shown. Some candidates answered reasonably well although others did not relate their answer to the new product being discussed in the question. The average mark was 2.2 out of 4.

Part d) required students to calculate a premium for a construction project and to justify any assumptions made. Most candidates answered this question well with the average mark being 4.4 out of 6. The wording of the question was not as clear as it might have been so students were rewarded for different possible interpretations.

Part e) asked candidates to recommend a reinsurance programme. Many candidates used a generic textbook type answer that scrolled through the different types of reinsurance available without showing any real appreciation of what might be suitable for this scenario. However the second part of 5e) asked candidates to explain the effects of a particular reinsurance programme on capital, solvency and profit margin, and this part of the question was handled quite well. The average mark was 2.2 out of 4.

Part f) asked candidates to design a profit sharing arrangement, set the eligibility criteria for which architect practices could participate, and explain the possible effect on non-participating practices. This part was answered rather poorly. The average mark was 1.8 out of 4.

Part g) asked candidates to explain to the Board the uncertainties associated with launching this new product and how these uncertainties might impact solvency. This part was answered very poorly with very few candidates showing an ability to synthesise the information to summarise the key issues under exam conditions. The average mark was 1.5 out of 4.

Part h) asked candidates how to decide whether to accept a portfolio transfer, including the assessment of transfer value. This part was answered very poorly by most candidates. The average mark was 1.9 out of 5.

Final grades were distributed as follows:

Strong Pass (A) – 6 candidates

Pass (B) – 18 candidates

Slightly Below Standard (C) – 17 candidates

Weak (D) – 5 candidates

Showed Little Knowledge (E) – 2 candidates

Not Attempted (X) – no candidates.

Subject 4A: Superannuation & Planned Savings

1. Summary

15 candidates enrolled for the May 2007 exam. Of these, 15 were present at the exam. It is proposed that 7 candidates be awarded a pass, which implies a pass rate of 47%.

This compares with a pass rate of 37.5% for the November 2006 exam (3 out of 8 candidates) and 50% for the May 2006 exam (6 out of 12 candidates).

In summary:

	Number of candidates
Originally enrolled	15
Absent from exam	-
Presented at exam	15
Passed	7
Failed	8

The analysis by examination centre is as follows:

Centre	**Presented**	**Passed**	**Pass Rate**
London	1	0	0%
Melbourne	5	3	60%
Sydney	9	4	44%
Total	15	7	47%

2. Examination and Administration

Examiners

Examiners for this year were:

Chief Examiner: Paul Newfield
Assistant Examiner: Phillip Everett

Degree of Difficulty and Course Coverage

The degree of difficulty of questions on each paper and course coverage is summarised in the tables below:

Question	K&U	SJ	CJ	Total Marks
1	5	12	9	26
2	1	5	14	20
3	4	12	9	25
4	2	1	1	4
5	7	12	6	25
Total	**19**	**42**	**39**	**100**

Overall Performance

Overall, 47% of students passed the course and of the 8 candidates who did not pass i.e. the remaining 53% of candidates – 2 received an overall D grade and the other 6 received a grading of C overall.

Overall the performance was stronger than for November 2006 (37.5% pass rate) and weaker than May 2006 (50% pass rate).

However, given the small sample size it is hard to draw any significant inferences.

Question by Question Analysis

The number and percentage of candidates that passed each individual question is set out in the following table:

Question	Number of Passes (Grade of A or B)	Percentage Pass Rate
Assignment 1	12	80%
Q1	6	40%
Q2	7	47%
Q3	4	27%
Q4	5	33%
Q5	11	73%
OVERALL	7	47%

Set out below are comments on each individual question based on feedback from markers, highlighting how the question was handled.

Question 1 (26 Marks)

Overall 6 students passed this question.

Of the 7 overall passes awarded, 4 of these candidates passed this question with the other 3 candidates awarded a C grade.

Both of the other candidates who passed this particular question, did not pass another question in the exam i.e. achieved C or below for all four remaining questions.

The following is a summary from the markers:

a) This part of the question was generally well handled. However, there were a couple of concerning responses. In particular, one student suggested that PVAB was less than VB because the benefit accrual rate was far greater than the member contribution rate!?! Apart from these concerns a half mark was lost in a number of cases due to minor omissions and insufficient explanation.

b) The responses to this part varied significantly in quality – as reflected by the marks awarded. It was felt that students focussed on MRBs and ensuring that these were covered rather than accrued benefits. Some students assumed that a transfer meant that the fund was winding up. There was no real mention of behavioural issues in terms of the objectives of the transfer and inducements that may be required to achieve this and responses often seemed to be a regurgitation of standard information without showing a great deal of thought for the situation at hand (this often led to repetition also).

   A couple of aspects of the question also seemed to be misinterpreted. In particular, the reference to ‘accounting costs’ was sometimes taken to refer to the cost of having AASB 119 calculations performed while others took this to refer to the cost reported in the company’s financial statements. The conversion of ‘future service benefits’ also seemed to interpreted inconsistently with some students taking this to mean that future service benefits were simply accumulation rather than that they were to be broadly equivalent to the current defined benefit.

   Finally, one point to note is that while the fund was in an unsatisfactory financial position at the date of the last actuarial review we are not told how much time has elapsed since then. As such, students who stated that the fund may now be in surplus were not penalised.

c) This part was not handled particularly well and, again, most students assumed that SG would simply be paid in the future. One point of note is that a few students pointed out that the MRB formula did not include additional accumulation accounts which were specifically included in the resignation and retirement benefit for the earlier parts.

Many students recognised that the financial position would improve but there was little valid discussion around opening account balances and future contribution rates.

Question 2 (20 Marks)

Overall 7 students passed this question.

Of the 7 overall passes awarded, 6 of these candidates passed this question with the other candidate awarded a C grade.

The other candidates who passed this particular question failed three of the four remaining questions.

The following is a summary from the markers:

General comments: Many students missed easy marks because they did not answer what the sub-question was asking or did not read the information provided in the question closely enough.

Many students claimed to have run out of time which is surprising considering this is Question 2 on the exam, although perhaps they were applying time limits to each question. Several students answered less than half of this question, claiming "run out of time". This may be a strategy to avoid admitting they cannot answer parts of the question.

(a) Issues arose around the interpretation of "career average plan" - no student interpreted this question correctly. Most answered "target funding" or "hybrid".

(b) & (c) This section was answered well by most students. Many students did not state that the minimum cost was the cost of the accumulation benefit although it is likely that most students understood this.

(d) & (e) Several students did not read the part of the question where it said that the accumulation benefit exceeded the notional balance for all members. This section was answered well by most students that attempted it.

(f) Most students were able to identify the equivalent financial instrument as an option, although only a few specified correctly that it was a put option.

(g) Most students were able to suggest an appropriate method here, although better students were able to describe their method in sufficient detail. Many students ignored the questions asking them to compare the answer to (b) and (d), missing out on easy marks.

(h) Many students failed to make a conclusion here, and only a few understood the implications of the earlier parts on actuarial valuations of hybrid schemes.

Question 3 (25 Marks)

Overall 4 students passed this question and this question had the lowest pass rate (27%) compared with the other questions.

Of the 7 overall passes awarded, 3 of these candidates passed this question with the other 4 candidates all achieving a C grade.

The other candidate, who passed this particular question but not the overall exam, only passed one other exam question and had a C, D and E for the remaining three questions.

The following is a summary from the markers:

- Question 3 was not done as well as hoped.
- Some students did OK in the Complex Judgement sections, but (perhaps surprisingly) missed the easier marks in the KU and SJ parts.
- Also, if students got the model wrong in part (e), they generally missed many of the marks in the following parts (f) and (g). Part (e) was a major distinguisher between students.

Question 4 (4 Marks)

Overall 5 students passed this question and this question had the second lowest pass rate compared with the other questions (Question 3 being the lowest passed).

All of the 5 candidates who passed this question passed the overall exam. Of the 2 candidates who achieved an overall pass but did not pass this particular question – both received D's for this question. Both of these candidates had one other C and three passed questions and hence were able to achieve an overall pass.

The following is a summary from the markers:

- Generally candidates did well in part a, but missed the point in part b (almost without exception).
- For a 4 mark question, it seemed like a lot of work for full marks.
- Not sure how worthwhile a 4 mark question is. Makes it difficult to grade and produce cut off marks.

In retrospect as chief examiner I concur with the last point. A small mark allocation made it very difficult to differentiate between candidates.

Question 5 (25 Marks)

Overall 11 students passed this question and this question had the highest pass rate compared with the other questions (73%).

Of the 7 overall passes awarded, all of these candidates passed this question.

In respect of the other 4 candidates who passed this question but did not pass the course overall:

- Two candidates did not pass another question, despite getting an A for question 5;

- The other two candidates both passed each other question but were given a fail overall due to their raw score in one case and not passing enough questions in another case.

The following is a summary from the markers:

a) Not answered particularly well. The majority of students identified the impact of investment return on asset gains/losses, and salaries on liability gains/losses. None mentioned the offsetting impact of high investment returns on liabilities given the accumulation design. Some mentioned the impact of benefit payments, but most didn't identify that the difference between the amount paid and the DBO was important. There was a common misconception that a change in assumptions represented an experience item.

b) Generally well answered. Most students were able to explain the different recognition methods, particularly the impact on profit and loss, but some failed to mention how the balance sheet item was calculated. In some cases there was slight confusion over accounting terminology.

c) Generally well answered, although some students referred to non-economic assumptions in their solutions. Some made the valid point that the assumptions were the ultimate responsibility of the company (and in particular that the recommendation of the salary assumption would generally follow discussion with the company).

d) Generally well answered. In a few of the weaker cases, the students failed to mention the asset and cashflow information required. Most students mentioned checking the investment return implied by the start and end asset values and cashflows with the actual return, and checking the calculation of vested benefits with the figure generated by the administration system, which were not included in the solutions but were valid points.

e) Some very good answers, some that showed little understanding of the differences between AASB 119 and FAS 87. Again, there were some students who provided valid answers not mentioned in the solutions - the asset ceiling in AASB 119 and the option to use a smoothed asset value under FAS 87

Paul Newfield
Chief Examiner, Superannuation & Planned Savings 4A
June 2007

Subject 5A: Investment Management and Finance

1. Summary

1.1. Pass Rates

18 Candidates enrolled for the 2007, Semester 1, Module 5A exam. Of these, 1 did not present at the exam. The assessment comprised one assignment worth 15%. The exam comprised the remaining 85%.

It is proposed that six Candidates be awarded a pass, which implies a pass rate of 35%. This compares with a pass rate of 44% for the 2006, Semester 2 exam.

1.2. Candidate Numbers

The Candidate numbers can be summaries as follows:

Table 1 – Candidate Numbers

	Number of candidates
Originally enrolled	22
Withdrawn prior to exam	4
Absent from exam	1
Presented at exam	17
Passed	6
Failed	11

The analysis by examination centre is as follows:

Table 2 – Analysis by Examination Centre

Centre	Presented	Passed	Pass Rate
Sydney	11	6	55%
Melbourne	5	0	0%
Singapore	1	0	0%
Total	17	6	35%

2 Examination Administration

2.1 Examiners

The examiners for this semester were:
Chief Examiner: Jim Qin
Assistant Examiner: Paul Carrett

2.2 Course Leader

The course leader was Andrew Leung for this examination session. The Course Leader was very helpful in assisting the Examination Team with all aspects of the examination process.

3. Examination Papers and Assignments

3.1 Degree of Difficulty and Course Coverage

The following tables show the distribution of questions and marks by level of difficulty and course coverage:

Table 3 – Degree of Difficulty of Exam

Question	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1a	1	1	1		2
1b	1	2	2	3	7
1c	1		2	2	4
1d	1		3	2	5
1e	2			2	2
2a	2	2			2
2b	2	1	1		2
2c	2	3	2		5
2d	2			2	2
2e	2		2		2
2f	2		2	3	5
2g	2		1	1	2
3a	3		2		2
3b	3	2	2		4
3c	3		2	3	5
3d	3		2	3	5
3e	3		2	2	4
4a	4	2			2
4b	4		3	2	5
4c	4		2	1	3
4d	4		1	2	3
4e	4	2	1	1	4
4f	4		1	2	3

5a	5		2	1	3
5b	5	2	2		4
5c	5	2	2	3	7
5d	5	2	1		3
5e	5			3	3
TOTAL		**21**	**41**	**38**	**100**

Table 4 – Course Coverage

Question	Units	Knowledge & Understanding	Straight-Forward Judgement	Complex Judgement	Total Marks
1	1	3	8	9	**20**
2	2	6	8	6	**20**
3	3	2	10	8	**20**
4	4	4	8	8	**20**
5	5	6	7	7	**20**
Total		**21**	**41**	**38**	**100**

Based on the table above, all five questions have similar spread of KU, SJ and CJ type marks, hence similar degree of difficulty.

3.2 Overall Performance

As is par for the course, this year's exam proved to be reasonably difficult for the majority of candidates. The pass rate of 35% (6 from 17 candidates), is not dissimilar to past examinations and is marginally lower than last semester's pass rate of 44%. While some concerns could be expressed regarding the overall performance, an analysis of the results highlights a core group of 6 candidates that performed capably across a range of targeted areas of study and were clear passes. Keeping in mind that the marginal passes are just that – marginal, I am happy with where the line has been drawn and with the pass rate overall.

The results should also be considered in light of the fact that the exam was challenging in terms of its breadth and the level of detailed knowledge required in each of the areas. Candidates were, as expected, presented with some difficult challenges, especially in light of the time constraints involved.

3.3 Question by Question Analysis

Question 1 (20 Marks)

This questions covered analysis of financial statements and dealt with the impact of IFRS, although it does not assume a detailed knowledge of accounting standards.

Despite being a largely a bookwork question with some complex judgement required in Part (d) and (e), it was not particularly well answered.

Question 2 (20 Marks)

This questions covered credit models and issues associated with calibration of the two models.

This question is average in terms of level of difficulty and overall candidates have performed to expectation. There was a reasonable spread of results and the question is a good indicator of candidate strength.

Feedback from the markers:

- Part (a) most candidates recognised pricing (new issues /secondary markets) but did not do so well on the other points
- Part (b) candidates tended to define model but missed out on marks for explaining default risk and risk premium
- Part (c) some candidates focussed on talking about the option model and did not talk adequately about the Carrett model
- Part (d) candidates focussed on one or two factors limiting the marks they got
- Part (f) merits were better explained than improvements

Question 3 (20 Marks)

This questions dealt with real options and DCF valuation techniques.

Overall this question was well answered and reflected in the high average mark. There was a reasonable spread of results and the question is a good indicator of candidate strength.

Feedback from the markers:

- Part a: Generally well answered and no misinterpretation.
- Part b: Generally well answered and no misinterpretation. However, many candidates failed to highlight that a DCF approach fails to recognise optionality.
- Part c: Candidates struggled to explain clearly the option valuation approach in terms of the multistate framework and use of risk neutral probabilities etc. Some candidates also discussed using Black Scholes option pricing - while not wrong did not lend itself to the question which was set out in the format of a decision tree with discrete states.
- Part d: There may be some misinterpretations of this question. The second part of the question asks to discuss whether the discount rate should be the same - most candidates answered it was different but struggled to discuss anything further.
- Part e: the question is fairly open ended and hence responses varied.

Question 4 (20 Marks)

This questions concerned multifactor APT model with an emphasis on direct property.

Overall the question was poorly handled by candidates, as reflected in the low pass rate. The markers felt that many candidates would have scored better with better exam technique.

Feedback from the markers:

- Part (a) Not well answered. Candidates were generally confused by the term 'market valuation' in the context of the APT model.
- Part (b) Candidates gained the most marks in this section as most could come up with a list of factors. The question also asked "how you would derive the factor exposures" which some candidates attempted, but most ignored.
- Part (c) Most candidates got a couple of macroeconomic factors, but did not deal well with trust specific issues.
- Part (d) Most candidates regurgitated some theory on the covariance matrix, and few successfully related it to property.
- Part (e) Most candidates did not follow the transition from the valuation of listed property trusts to direct property. Only a few candidates mentioned that factors relating to the financial structure and management of the property trust would not be applicable to direct property.

Question 5 (20 Marks)

This question focused on dynamic asset allocation.

Overall the answers for question 5 were extremely poor and not many candidate seemed to clearly understand what the question was asking.

The poor answers were probably due to the following:

- Question 5 being the last and hence candidates running out of time.
- Candidates did not seem to understand the question or try to answer the question that was asked. They appeared to have put down some general points to show their knowledge rather than answer the specific question.
- The candidates' responses were poorly structured and did not relate to the question asked.
- The question was fairly broad with a large range of concepts included (investment objective / LDI / risk portfolio / static asset model / dynamic asset model) which were tested in specific parts of the question.

Subject 10: Commercial Actuarial Practice

SUMMARY

The overall objectives of the Commercial Actuarial Practice (CAP) Course are, in summary, to enable students to:

- Apply actuarial skills across a range of traditional and non-traditional areas by contextualising actuarial solutions or approaches in the wider commercial environment
- Apply ethical concepts, corporate governance requirements and actuarial professional standards when contextualising actuarial solutions or approaches
- Successfully communicate the actuarial solutions or approaches to a range of audiences.

Given these objectives, the assessment for the course is focused on the practical application of judgement and on the communication skills of the students rather than on bookwork.

There are two separate pieces of assessment. The first assessment is based on participation in a one-week residential course and on completion of a case assessment in one of the traditional areas of actuarial practice on the last day of the residential course. The second assessment is a 2-hour examination on non-traditional areas of actuarial practice. Students are required to pass each of these assessments in order to pass the Module. Students who fail one or both of these assessments may be permitted to resit the assessment(s) they failed without completing the whole course again.

A total of 61 candidates were originally enrolled for one or both of the assessments in Semester 1 of 2007. 59 presented for the case assessment and 44 of these also attended the residential course. 49 candidates presented for the examination.

Results by Assessment Piece.

Of the 59 candidates who presented for the case assessment, it is proposed that 39 be awarded a pass, which implies a pass rate of 66 %. Of the 49 candidates who presented for the examination, it is proposed that 37 be awarded a pass, which implies a pass rate of 76%.

In total, out of the 61 candidates who presented for one or both of the assessments, it is proposed that 35 be awarded a pass in the course. This implies an overall pass rate of 57%. This is down on the 64%, 64% and 61% respectively who passed in the previous three semesters.

In addition, it is proposed that 5 candidates be given a pass for the case assessment but a failure for the exam, and a further 13 candidates be given a pass for the exam but a failure for the case assessment.

Results by Enrolment Category.

Of the 44 candidates who attended the residential course and also sat the examination, 22 passed both, implying a pass rate of 50%.

13 of the 17 repeat candidates ie those sitting the case and exam (having previously attended the residential course without passing), and those sitting either the case only or the exam only, passed their assessments, implying a pass rate of 76%. The significantly higher pass rate amongst repeat students indicates that success may follow the lessons from earlier failure.

There is no statistical difference in student performance between examination centres.

A full summary of results is set out in Attachment 1

EXAMINERS

The assessment materials for the course were developed and the marking was undertaken by a team, consisting of David Service (Course Leader), Elayne Grace, Tim Higgins, Richard Madden, Peter Martin and Colin Priest.

The Chief Examiner was Trevor Thompson, and the Assistant Examiner Ken McLeod.

ASSESSMENT PIECE 1

Residential Course and Case Assessment

10% of the potential marks for Assessment Piece 1 were based on the candidates' participation during the first five days of the residential course. The participation was graded according to the effort demonstrated in preparing a report and discussion notes prior to the course and to the candidates' general participation in syndicate work and plenary discussion at the course.

90% of the assessment was based on a single question delivered in "case study" format at the start of the sixth day of the residential course. The candidates were given up to 8 hours (the sixth day of the course) to absorb the question material, perform all the necessary analyses and prepare the written communication of the answer. The answer was required to be a substantial written report.

Candidates were required to select one case study question from one of the four defined traditional practice areas, i.e. life insurance, general insurance, superannuation or investments. The assessment was open book, and candidates were allowed to bring any written material to the session, but were not allowed any outside communication.

Results

The marks awarded for participation in the residential course varied between 3.9 and 8.7 out of 10. David Service advised that student preparation was generally good this

Semester, including the quality of completion of the pre-work, although a number of students had not prepared well. Also, that there was a wider range of contribution to the syndicates and the plenary discussions than in previous semesters. Candidates who sat the case assessment but did not attend the residential course this semester were awarded the marks gained for their previous participation in the residential course.

The proposed pass results for Assessment Piece 1 as a whole, are shown by subject below:

Subject	Sat	Pass	Fail	Pass Rate
Life Insurance	17	9	8	53%
General Insurance	23	16	7	70%
Superannuation	7	5	2	71%
Investments	12	9	3	75%
Total	59	39	20	66%

Life Insurance

The Life Insurance case required candidates to prepare a report for their employer, a medium sized life insurance company specialising in the superannuation business, on a proposed new life annuity product for the company to address a hypothetical market opportunity created by the government changing the superannuation rules to provide superannuation benefits tax free if taken in a non-commutable life annuity.

The report was required to identify minimum pricing points to meet the company's financial criteria, along with a suitable investment strategy for the product. All assumptions were required to be stated and justified. The request was for a product that was fair to the company and the customers.

After commencing work on the report you are told that a competitor has launched a new product, which appears keenly priced. You are now required to identify and report on what is required to match this product and the associated risks. You are provided with an estimate from the sales and marketing areas of the likely sales volumes, which might be achieved, according to whether the price is competitive.

The key requirements in the question were the ability to set a price to meet the company's initial objective and to identify what is required to match the newly released competitor product. This required recognising the importance of availability of suitable investments before setting the annuity pricing, likely improvements in mortality, and forecast long-term administration costs. Also, the business vulnerability of failure to meet sales volumes, through uncompetitive pricing or otherwise.

Most student answers were reasonable as far as they went, although there was a surprising range of approaches and assumptions considering the question. Some assumed an index- linked annuity, some went as a result for an aggressive investment mix. Some felt that there would be significant capital requirements – none appeared to link this to the investment mix. Some belaboured the mortality risk. A number suggested product variants to improve competitiveness. Some hinted at reviewing the assumptions. No students did justice to the CEO's stated intention that he 'wanted a product that was right for the customer as well as the company and that he wanted to proceed at a measured pace to ensure this'. Overall the students seemed to know the key issues and considerations, but struggled to assemble into a balanced argument and appropriate report.

On reflection this was a difficult question because of the extent of analysis required before reaching conclusions. This may have resulted in lesser quality reports due to limited time. Students were not unduly marked down on quality of reports if the fundamental points were sound. Nevertheless, the pass rate was disappointingly low.

General Insurance

The General Insurance case required candidates as the commercial lines pricing actuary of a large general insurer, to prepare a report for the CEO to brief the Board and prepare a response to media reports of a price war in commercial lines business. You need to establish the situation within the company and recommend any actions that are required in relation to the situation you find. You are provided with the limited data that is available.

Most reports reviewed seemed buried in the analysis and struggled to make the key points. It appears that students continue not to be taught rating analysis well. None tested profitability against premium rates and volume. None identified the risk of existing clients defecting if premium rates fell generally, let alone demand reductions on renewal. Nevertheless most students seemed to have an adequate grasp of the issues in play, but with varying degrees of naivety and communication difficulties in expressing these. Very few addressed their report to the circumstances of the CEO and his request.

Superannuation

The Superannuation case required candidates to investigate the financial position of a merged defined benefit superannuation fund and prepare a report on the adequacy of the current contribution arrangements. The previous actuarial report of one of the funds was not available and the company is anticipating a difficult trading period and is keen to maintain or ideally reduce contribution levels. The merged schemes are quite different to each other and contain some unique aspects.

Students were required to identify that continuation of the current contribution rates would lead to a cash flow crisis in the fund due to the benefit design and age of members of one of the merged sections. There were also professional aspects to be noted around proceeding without access to the previous actuarial report and being requested to provide advice without a full or qualified report.

Investments & Finance

The Investments case asked candidates to advise as a consultant to a Foundation being established by a rising tennis star to assist disadvantaged junior tennis players in Africa to achieve their potential. The intention is for contributions by the founder to be determined using a formula set in advance, with the objective of achieving and maintaining an agreed balance sufficient to achieve the Foundation's objectives. The founder also has strong views on not eroding the capital and avoiding volatile equity investments. You are required in your report to recommend a contribution formula to achieve the objectives, an investment strategy and comment on the workability of the rules as postulated.

Students were expected to model the scenario and identify the challenge of meeting the objective of the Foundation within the constraints/preferences stipulated by the founder, and to explain the options and trade offs to reach an acceptable outcome to the founder.

A key aspect to the answers was the credibility of the recommended contribution rate and investment strategy. Either the proposal is feasible or not. There were some wide differences in contribution rates required although most students developed investment strategies appropriate to their overall approach.

ASSESSMENT PIECE 2

Non-Traditional Exam

Assessment Piece 2 was a two-hour examination held in the usual examination session at the end of the semester. One question was offered in each of 5 defined non-traditional practice areas, i.e. infrastructure, ageing populations, banking, environment and health. Each candidate was required to attempt 2 out of the 5 questions. Candidates were permitted to take any materials into the examination.

Results

It is proposed that all those with a mark of 50 or more should pass. This means that 37 out of the 49 candidates who sat the exam should pass, or 76%.
Students who did sufficiently well in one question to still achieve a mark in excess of 50 despite a fail in another question were not denied a pass if their weaker question was a marginal fail and did not contain gross errors of understanding.

The results by question are set out in the table below.

Question	Sat	Pass*	Pass Rate	Avg Mark A	Avg Mark B	Avg Mark
Ageing	36	20	56%	52	49	51
Banking	9	5	56%	55	51	53
Environment	26	22	85%	60	60	60
Health	16	13	81%	62	62	62
Infrastructure	11	9	82%	62	60	61
All Questions	98	69	70%	57	55	56

** This refers to the number of candidates who received a mark of 50 or more in the specific question rather than those who passed the exam as a whole.*

Overall, the pass rates in the individual questions for Assessment Piece 2 were relatively good, although not as good as in semester two of last year, when 77% of individual questions received pass marks, or the previous year 89%, compared with 70% this semester. The Ageing and Banking questions proved to be deceptively difficult, but in the examiners’ view still fair. Comments on the individual questions are set out below.

Ageing Populations

The Ageing Populations question placed the candidates as a consulting actuary, who had been requested by a large financial services company, which specialises in services to the aged, to advise on likely trends in demand for existing and new products for the aged, the reasons for those trends, any new product opportunities and outline any modelling you recommend to substantiate your advice. This was a dramatically worse result than semester two of last year (86%). The question was not particularly difficult. However student answers reviewed were typically very general and superficial pointing only to high-level trends and possible implications/opportunities for products. Much greater insight and analysis was expected along with some specific modelling specifications, whilst acknowledging their limitations and the value of scenario testing. Also, a clear acknowledgement of the key role of longevity, economic prosperity and government assistance to the elderly. Overall, a disappointing result, especially since so many candidates selected this question.

Banking

Candidates were asked to prepare a report for a major Australian bank, which was considering introducing differential credit pricing for credit card risks to address non-bank competition. The report was to advise on the correct credit risk pricing and how it could be established, and the likely response of other major banks and the non-bank competitors.

This proved to be quite a tricky question. Students made a number of good points but few reviewed were able to make a clear statement of the pricing profitability trade off. However most students understood the issues in adequate depth to pass.

Environment

This question asked the candidates as a member of the Institute's Energy and Environment Committee to prepare a presentation to the Institute Council setting out how the profession can contribute to the Prime Ministers Working Group discussion on an Emissions trading scheme. Specifically you were asked to cover the main features of an emissions trading scheme, what analytical support actuaries could contribute to the discussion, and the likely impact of an emissions trading scheme on industry.

This too was clearly a difficult question for students to communicate clear concise answers. Many general points made and concepts recognised, but it was not entirely clear if they were fully understood. Overall the answers were reasonable in this new and somewhat nebulous field.

Health

Candidates were provided with background outlining government initiatives to address bowel cancer in Australia, specifically a pilot study, followed by roll out of a wider Bowel Cancer Screening Program. Candidates were asked to submit a proposal to evaluate this stage of the Program, with a view to the Program being extended to more participants. The report was required to address the pros and cons of extending the program, the ranges of issues you see as important for a proper evaluation and any problems you foresee, and any additional information you require.

These answers were generally broad and generic, and identified considerations without attempting to assess likely impact. Most recognised the need for scenario modelling but most also wanted greater data than would probably be available. Few were able to present the issue in its simplest terms.

Infrastructure

Candidates were asked to advise a prospective purchaser making a preliminary estimate of the economic value of Sydney Airport. You have been provided with various pieces of publicly available information on the financial results of the airport operator and have been asked to identify what further information would you require to make the preliminary estimate and to identify the relative importance of all the information you would use for the valuation and the reasons for its importance.

The particular proposal for the purchase of a high profile airport clearly involves political, commercial and economic implications.

These answers identified and ranked the key issues as required. However students simply identified what information would be ideal without regard to, or identifying, possible sources. Also those reviewed did not seem to recognise that this was a preliminary assessment of value for purchase.

Trevor Thompson

Chief Examiner, Commercial Actuarial Practice
15 June 2007

Attachment 1

Results by enrolment category

	Full course	***Case and exam only***	***Case only***	***Exam only***	***Total***
Enrolments	44	4	12	1	61
Presented	44	3 *	12	2 *	61
Passed case and exam	22	1			23
Passed case failed exam	5				5
Failed case passed exam	12	1			13
Deferred case failed exam				1	1
Failed both case and exam	5	1			6
Passed case only			11		11
Failed case only			1		1
Passed exam only				1	1
Pass rate %	50	33	92	50	

* Student deferral

Results by Assessment Piece

	Case	Exam	Total
Presented	59	49	61
Passed	39	37	35
Failed	20	12	26
Pass rate %	66	76	57

Results by Examination Centre

	Case			**Exam**			**Course**		
Centre	**Presented**	**Pass**	**Pass Rate**	**Presented**	**Passed**	**Pass Rate**	**Presented**	**Passed**	**Pass Rate**
Sydney	37	24	65%	30	25	83%	38	23	61%
Melbourne	10	7	70%	9	6	67%	10	7	70%
Brisbane	1	1	100%	1	1	100%	1	1	100%
Canberra	2	1	50%	1	1	100%	2	1	50%
Perth	1	1	100%	0	0		1	1	100%
London	2	2	100%	3	1	33%	3	1	33%
Hong Kong	4	2	50%	3	2	67%	4	1	25%
Malaysia	1	0	0%	1	1	100%	1	0	0%
Singapore	1	1	100%	1	0	0%	1	0	0%
Other	0			0			0		
Total	59	39	66%	49	37	76%	61	35	57%

** Note that all of the candidates completing the residential course physically sat the case assessment in Sydney. This analysis is based on home location, where the candidate sat the exam.*