

Retirement Design and Pricing Exam Syllabus
November 2007
U.S

Exam: Retirement DP U.S.
Instructional Objectives
1. The candidate will be able to analyze different types of registered/qualified defined benefit and defined contribution plans
Learning Outcomes
<p>The candidate will be able to:</p> <ul style="list-style-type: none"> a) Describe the structure of the following plans: <ul style="list-style-type: none"> ▪ Fixed dollar and pay-related defined benefit plans ▪ Hybrid plan designs such as, cash balance, pension equity, and floor offset plans, flexible pension plans, target benefit plans ▪ Defined contribution plans including 401(k) plans and capital accumulation plans b) Describe the process and apply the principles of conversions from one plan type to another c) Apply methods of the integration of government-provided benefits with retirement plan designs d) Given a plan type, explain the relevance and range of plan features including the following: <ul style="list-style-type: none"> i) Plan eligibility requirements ii) Benefit eligibility requirements, accrual, vesting and phased retirement iii) Benefit / contribution formula iv) Payment options and associated adjustments to the amount of benefit v) Ancillary benefits vi) Benefit subsidies and their value, vested or non-vested vii) Participant investment options viii) Required and optional employee contributions ix) Phased retirement and DROP plans
Syllabus Resources
<p><i>Fundamentals of Private Pensions</i>, McGill, Brown, Haley, Schieber, Eighth Edition, Ch. 13 <i>Fundamentals of Private Pensions</i>, McGill, Brown, Haley, Schieber, Eighth Edition, Ch. 15, pp 378-381 on employee contributions <i>Fundamentals of Private Pensions</i>, McGill, Brown, Haley, Schieber, Eighth Edition, Ch. 19 <i>Fundamentals of Private Pensions</i>, McGill, Brown, Haley, Schieber, Eighth Edition, Ch. 20 pp 571-574 on DROP plans <i>Fundamentals of Private Pensions</i>, McGill, Brown, Haley, Schieber, Eighth Edition, Ch. 20, pp. 552-553 (why an employer might consider phased retirement)</p> <p><i>Pension Planning</i>, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 3, "DC v DB Plans," pp 47-48</p>

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Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 4, pp 72-74, “Integration Rules”
Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 7, “Money Purchase Pension Plans”, pp. 127-133
Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 8, “Profit Sharing Plans” pp. 141-142
Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 9, “Savings Plans” pp. 155-159
Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 10, “ESOPS”, pp. 175-180
Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 11 “401(k)”, pp. 183-186
Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 12, “403(b)”, pp. 203-204
Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 13,
Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 19,

R-D100-07 (Formerly 8RC 110-00): Multi-Employer Plans
 R-D800-07: Laska & Barry, “The New Deferred Compensation Rules: The Sky Is not Falling,” *Compensation & Benefits Review*,
 May/June 2005
 R-D101-07 (Formerly 8RU & 8RC-309-06): pp. 1–5,
 R-D102-07 (Formerly 8RC-116-05 & 8RU-116-05): Integration With Social Security
 R-D801-07: “Current Issues with Public Employee Retirement Systems” 2005 EA meeting, session 202, pp. 17 (Plan Design) –35
 (exclude Q&A)

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Instructional Objectives

2. The candidate will be understand how the regulatory environment affects plan design and understand how to apply relevant restrictions.

Learning Outcomes

The candidate will be able to, for the designated region:

- a) Explain and apply the regulatory limits placed on types of plans that can be offered
- b) Explain and apply restrictions on plan design features to a proposed plan design
- c) Explain and test for limits on plan designs and features that protect participant rights
- d) Test for plan design restrictions intended to control the use of tax incentives
- e) Calculate the limitations on payout options
- f) Explain and apply rules governing the conversion from one type of plan to another

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Syllabus Resources
<p><i>Fundamentals of Private Pensions</i>, McGill, Brown, Haley, Schieber, Eighth Edition, Ch. 7, pp 159-176</p> <p><i>Fundamentals of Private Pensions</i>, McGill, Brown, Haley, Schieber, Eighth Edition, Ch. 12</p> <p><i>Fundamentals of Private Pensions</i>, McGill, Brown, Haley, Schieber, Eighth Edition, Ch. 13</p> <p><i>Fundamentals of Private Pensions</i>, McGill, Brown, Haley, Schieber, Eighth Edition, Ch. 19</p> <p><i>Fundamentals of Private Pensions</i>, McGill, Brown, Haley, Schieber, Eighth Edition, Ch.20, pp 565-571, 574-579 (regulatory and other impediments to phased retirement),</p> <p><i>Pensions in Industrialized Countries</i>, Turner & Watanabe, p.59-63</p> <p><i>Pension Planning</i>, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, p. 91 minimum distribution rules</p> <p><i>Pension Planning</i>, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 6, pp 119-125 (“Age/Sex Discrimination,” “Military Leaves,” “SEC Requirements”, “Collective Bargaining Requirements”)</p> <p><i>Pension Planning</i>, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 7, “Money Purchase Pension Plans,” pp 134-137 (“Tax Law Provisions”),</p> <p><i>Pension Planning</i>, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 8, “Profit Sharing Plans,” pp 142-150,</p> <p><i>Pension Planning</i>, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 9, “Savings Plans,” pp 159-168,</p> <p><i>Pension Planning</i>, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 10, “ESOPs,” pp 175-180,</p> <p><i>Pension Planning</i>, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 11, “401(k),” pp 188-200,</p> <p><i>Pension Planning</i>, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 12, “403(b),” pp 204-218,</p> <p><i>Pension Planning</i>, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 27</p> <p>R-D100-07 (Formerly 8RC- & 8RU 110-00): Multi-Employer Plans</p>

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Instructional Objectives
3. The candidate will be able to analyze plans designed for executives or the highly paid
Learning Outcomes
The candidate will be able to:
<ul style="list-style-type: none"> a) Given a specific context, apply principles and features of executive deferred compensation retirement plans. b) Given a specific context, apply principles and features of supplemental retirement plans

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c) Integrate a plan for executives with the basic benefit plan

Syllabus Resources

Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, , Ch. 20

Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, , Appendix 3, Section 457 Deferred Compensation Plans”

R-D800-07: Laska & Barry, “The New Deferred Compensation Rules: The Sky Is not Falling,” *Compensation & Benefits Review*, May/June 2005

R-D103-07 (Formerly 8RC & 8RU-103-00): Should Variable Pay Count Towards Benefits Calculations

R-D802-07: “Executive Compensation and Benefits,” 2004 CCA meeting, session 12. Max Schwartz slides on the status of law regarding deferred compensation prior to 409A and Oct. 12, 2004 memo on deferred compensation.

R-D803-07: “NQDC: Holding Fast to the Past while Facing the Future, Musick, *Compensation and Benefits Review*, May/June 2005, pp.1-45 (overview of 409A rules)

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Instructional Objectives
4. The candidate will understand alternative plan types that occur internationally
Learning Outcomes
The candidate will be able to: a) Compare different plan types and features b) Give examples of the structure of different plan types c) Give examples of the structure of different plan types d) Give examples of plans that could work for multinational companies and their employees including third country nationals and expatriates
Syllabus Resources
<i>Private Pension Policies in Industrialized Countries</i> , Turner & Watanabe, Ch. 2, <i>Private Pension Policies in Industrialized Countries</i> , Turner & Watanabe, Ch. 7 R-D104-07 (Formerly 8RU & 8RC-120-03): The Globalization of Employee Benefits R-D105-07 (Formerly 567-46-97): Labor Market Plans R-D106-07 (Formerly 567-45-97): Termination Indemnities R-D107-07: “The European Pension Benefits Environment – A Complex Ecology”, Jan-Feb 2005, Taft & Powell, <i>Compensation and Benefits Review</i> R-D108-07: “Pension Challenges and Pension Reforms in OECD Countries”, Whiteford & Whitehouse, <i>Oxford Review of Economic Policy Vol 22 No. 1</i>

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Instructional Objectives
5. The candidate will be able to apply/synthesize the various methods used to value a pension plan for the purposes of the valuation.
Learning Outcomes
The candidate will be able to: a) Differentiate between the various purposes for valuing pension plans: i) Budgeting ii) Funding iii) Accounting iv) Solvency v) Termination/wind-up vi) Economic value b) Perform periodic valuations of ongoing plans, calculating normal cost and actuarial liability, using the variety of cost methods for budgeting, funding, accounting and measuring economic value. c) Analyze and communicate the pattern of cost recognition that arises under a variety of funding and asset valuation methods. d) Perform valuations for special purposes, including: i) Plan termination/windup ii) Solvency valuations iii) Open group valuations e) Assess the impact of using various cost methods in a given context.
Syllabus Resources
R-D109-07: Financial Economics and Canadian Pension Valuation, September 2006 paper by CIA Task Force R-D110-07: <i>Pensions in the Public Sector</i> , Mitchell, Husted, Ch. 3, pp 56-61 “ Pension Plan Asset Valuation Methods”, Pension Forum 8/2001 on asset methods pp. 51-59, 83-87 http://www.soa.org/library/newsletters/pension-forum/2001/august/pfn0108.pdf “Dynamic Pension Plan Valuation”, 8/2001 Pension Forum, http://www.soa.org/library/newsletters/pension-forum/2001/august/pfn0108.pdf

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Instructional Objectives
6. The candidate will be able to analyze/synthesize the factors that go into selection of actuarial assumptions.
Learning Outcomes
<p>Given a context and/or data, the candidate will be able to:</p> <ul style="list-style-type: none"> a) Evaluate actual experience, including comparisons to assumptions b) Adjust current assumptions, given past experience and trends c) Explain the differences between setting assumptions for diversifiable versus non-diversifiable risks. d) Evaluate appropriateness of current assumptions given the purpose. e) Describe and explain the differences between a traditional and a financial economics perspective on the selection of assumptions f) Evaluate the appropriateness of actuarial assumptions using both a traditional and a financial economics perspective g) Describe and apply the building of economic assumptions h) Assess and explain the effect that the assumptions selected had on valuation results. i) Recommend appropriate assumptions for a particular type of valuation (e.g., ongoing, termination, etc.) and defend the selection. j) Select demographic and economics assumptions appropriate for a sensitivity analysis k) Select demographic and economic assumptions appropriate for a projection valuation designed for a given goal
Syllabus Resources
<p>R-D111-07: "Creating a Corporate Bond Spot Yield Curve for Pension Discounting" – U.S. Treasury White Paper R-D112-07 (Formerly 8RU & 8RC-208-02): Selection of Actuarial Assumptions, pp.1-44 only R-D113-07 (Formerly 8RU & 8RC-206-02): Mortality Tables for Pension Plans R-D114-07 (Formerly 8RC & 8RC-203-00): An Introduction to Duration for Pension Actuaries R-D115-07 (Formerly 8RU & 8RC-225-04): "Reinventing Pension Actuarial Science" with discussion, <i>Pension Forum</i>, June 1993 R-D116-07 (Formerly 8RU & 8RC-226-04): "Selection of Valuation Interest Rates for Funding Valuations of Pension Plans – Traditional Pension Plan Approach Versus Financial Economics Approach" R-D109-07 Financial Economics and Canadian Pension Valuation , CIA Task Force R-D117-07 (Formerly 8RU & 8RC-202-00) "Pension Projections" R-D118-07: <i>Liability Hedging and Portfolio Choice</i>, Scherer, Ch.s 1 &2,</p>

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“A Practical Approach to Gains Analysis Revisited” by Andrew Smith, *Pension Section News*, Sept. 93
<http://www.soa.org/library/newsletters/pension-section-news/1993/september/psn9309.pdf>

“A Practical Approach to Gains Analysis” by Josiah Lynch – *TSA Vol 27* pp.423-439
<http://www.soa.org/library/research/transactions-of-society-of-actuaries/1975/january/tsa75v2717.pdf>

“Differences in Actuarial Assumptions” by Berin, *The Actuary*, 1988 <http://www.soa.org/library/newsletters/the-actuary/1988/january/act8801.pdf>

ASP No. 35 – Selection of Demographic and other Noneconomic Assumptions for Measuring Pension Obligations, ASB December 1999
http://www.actuarialstandardsboard.org/pdf/asops/asop035_093.pdf

ASP 27 “Selection of Economic Assumptions for Measuring Pension Obligations” , ASB December 1996
http://www.actuarialstandardsboard.org/pdf/asops/asop027_053.pdf

“What’s Wrong with ASOP 27? Bad Measures, Bad Decisions” by Bader & Gold, Jan., 2005 *Pension Forum*
<http://www.soa.org/library/newsletters/the-pension-forum/2005/january/pfn0501.pdf>

Pension Forum Jan 05 (**entire issue**) <http://www.soa.org/library/newsletters/the-pension-forum/2005/january/pfn0501.pdf>

“Current Trends in Demographic Assumptions” – Session 63 PD, San Francisco Spring Meeting
<http://www.soa.org/library/proceedings/record-of-the-society-of-actuaries/2000-09/2002/january/rsa02v28n263pd.pdf>

Selection of Economic Assumptions for Funding and Accounting Valuations, *RSA VOI 20 #3a*, 1994 (**exclude section on mortality tables**) <http://www.soa.org/library/proceedings/record-of-the-society-of-actuaries/1990-99/1994/january/RSA94V20N3A17.PDF>

“A Look at Dynamic Pension Plan Valuation, 71-82 , *Pension Forum*, August, 2001
<http://www.soa.org/library/newsletters/pension-forum/2001/august/pfn0108.pdf>

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7. The candidate will be able to analyze data for quality and appropriateness.
Learning Outcomes
Given a context, the candidate will be able to:
<ul style="list-style-type: none"> a) Assess data quality b) Make appropriate assumptions where data cannot be provided
Syllabus Resources
ASP 23, Data Quality http://www.actuarialstandardsboard.org/pdf/asops/asop023_097.pdf

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8. The candidate will be able to evaluate the actuarial considerations in plan options and administrations.
Learning Outcomes
The candidate will be able to: a) Assess the gain/loss from options offered, including: <ul style="list-style-type: none">▪ Phased retirement▪ Postponed retirement▪ Early retirement▪ Option factors▪ DROPs b) Assess the impact of applicable regulation, including: Commutated value standard
Syllabus Resources
R-D801-07: “Current Issues with Public Employee Retirement Systems,” 2005 EA meeting, session 202, pp. 17 (Plan Design) –35 (exclude Q&A) R-D119-07 (Formerly 8P 23-00): Actuarially Equivalent Benefits , “Issues for Implementing Phased Retirement in Defined Benefit Plans,” Forman and Scahill, <i>North American Actuarial Journal</i> , July 1, 2003. http://www.soa.org/library/journals/north-american-actuarial-journal/2003/july/naaj0307_6.pdf

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9. The candidate will be able to understand principles and rationale behind regulation.
Learning Outcomes
The candidate will be able to: a) Describe the principles and motivations behind tax policy b) Describe the principles and motivations behind legislated restrictions c) Describe sources and framework of government regulation
Syllabus Resources
<i>Private Pension Policies in Industrialized Countries</i> , Turner and Watanabe, Ch.. 4

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10. The candidate will be able to analyze the relationship of plan investments with plan design and valuations.
Learning Outcomes
In a given context, the candidate will be able to: a) Evaluate the interaction of plan investments and: <ul style="list-style-type: none"> ▪ Plan design, ▪ Plan funding, ▪ Valuation assumptions, and ▪ Valuation methods. b) Solve for a measure of investment performance relevant to a given benchmark c) Given a context, describe and compare the structure of appropriate investment vehicles
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Pension Planning, Allen, Melone, Rosenbloom, Mahoney, Ninth Edition, Ch. 22

R-D120-07 (Formerly 8RU & 8RC-307-05), Asset/Liability Modeling and Asset Allocation for Pension Plans “
 R-D121-07: “Note on the Relationship Between Pension Assets and Liabilities”, Speed , Bowie, Exley, Jones , B
 R-D122-07 (Formerly 8RU & 8RC-304-00): “ The Successful Use of Benchmark Portfolios: A Case Study”
 R-D123-07:Ch. 12 of *Managing Investment Portfolios*, Third Edition, Maginn and Tuttle,
 R-D124-07 (Formerly 8RU & 8RC-301-00), “Introduction and Overview of Retirement Plan Investments”

“Economic Design of Cash Balance Pension Plans, Gold

<http://www.soa.org/library/monographs/retirement-systems/cash-balance-symposium/2002/january/m-rs02-3-01.pdf>

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Instructional Objectives

11. The candidate will be able to apply standards of practice and the guides to professional conduct.

Learning Outcomes

In general or in a given context, the candidate will be able to:

- a) Explain and apply the Guides to Professional Conduct
- b) Explain and apply the relevant qualification standards
- c) Demonstrate compliance with legal requirements regarding the actuaries responsibilities to the participants, plan sponsors, etc.
- d) Explain and apply all of the applicable standards of practice related to valuing retirement obligations.
- e) Recognize situations and actions that violate or compromise Standards or the Guides to Professional Conduct.
- f) Recommend a course of action to repair a violation of the Standards or the Guides to Professional Conduct.

Syllabus Resources

AAA Code of Professional Conduct http://www.actuary.org/pdf/prof/code_of_conduct.pdf

SOA Guides to Professional Conduct <http://www.soa.org/about/membership/about-code-of-professional-conduct.aspx>

AAA Qualification Standards http://www.actuary.org/pdf/prof/qualif_stnds.pdf

SOA Qualification Standards <http://www.soa.org/about/membership/about-req-admission.aspx>

ASOPs 23, 41 – http://www.actuarialstandardsboard.org/pdf/asops/asop023_097.pdf

http://www.actuarialstandardsboard.org/pdf/asops/asop041_086.pdf

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ASOP 2, 4, 27, 35 – http://www.actuarialstandardsboard.org/pdf/asops/asop002_004.pdf
http://www.actuarialstandardsboard.org/pdf/asops/asop004_046.pdf
http://www.actuarialstandardsboard.org/pdf/asops/asop027_053.pdf
http://www.actuarialstandardsboard.org/pdf/asops/asop035_093.pdf