

**JOINT BOARD FOR THE ENROLLMENT OF ACTUARIES  
AMERICAN SOCIETY OF PENSION PROFESSIONALS AND  
ACTUARIES**

**SOCIETY OF ACTUARIES**

**EXAMINATION PROGRAM**

**MAY 2019 BASIC (EA-1) EXAMINATION**

**MAY 2019 PENSION EA-2 (SEGMENT L) EXAMINATION**

**NOVEMBER 2019 PENSION EA-2 (SEGMENT F) EXAMINATION**

**January 2019  
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## TABLE OF CONTENTS

Introduction.....	1
All Examinations .....	2
Basic EA-1 Examination.....	3
Pension EA-2 (Segment L) Law Examination.....	7
Pension EA-2 (Segment F) Funding Examination.....	20

## INTRODUCTION

The Joint Board for the Enrollment of Actuaries administers two actuarial examinations that must be successfully completed by individuals to satisfy the actuarial knowledge requirement for the designation of Enrolled Actuary.

The actuarial knowledge requirement for enrollment is augmented by a requirement that a candidate have certain responsible pension actuarial experience. Through a combined knowledge and experience requirement, the Joint Board seeks to determine which applicants for the designation of Enrolled Actuary have the skills necessary to protect the interests of pension plan participants.

The examinations are structured as follows:

The EA-1 examination is two-and-one-half hours in length and covers (1) the mathematics of compound interest and practical financial analysis and (2) the mathematics of life contingencies and practical demographic analysis.

The pension (EA-2) examination consists of two segments:

- (a) The EA-2 (Segment L) law examination (formerly EA-2 (Segment B)) is two-and-one-half hours in length and covers relevant pension laws (in particular the provisions of the Employee Retirement Income Security Act (ERISA) and related laws, regulations, and rulings) as they affect pension actuarial practice. The EA-2 (Segment L) examination presupposes knowledge of the topics covered in the EA-1 examination.
- (b) The EA-2 (Segment F) examination (formerly EA-2 (Segment A)) is four hours in length and covers the selection of actuarial assumptions and calculation of minimum required and maximum tax-deductible contributions under current pension law, along with the related actuarial mathematics. The EA-2 (Segment F) examination presupposes knowledge of the topics covered in the EA-1 and EA-2 (Segment L) examinations.

EA-1 and the EA-2 (Segment L) examinations are given in May; the EA-2 (Segment F) examination is given in November.

A candidate for enrollment may be able to satisfy part of the actuarial knowledge requirement of the Joint Board regulations by earning a degree in actuarial mathematics or its equivalent from an accredited college or university. Such candidates will not have to pass the EA-1 examination. The courses in the plan of study and their successful completion must comply with guidelines adopted by the Joint Board for determining what demonstrates the requisite knowledge. The Joint Board will grant a waiver of the EA-1 examination to any candidate who received credit from the Society of Actuaries (SOA) for Courses FM and either MLC or LTAM of the SOA's education and examination program. Under either approach, the candidate must apply to the Joint Board for a waiver of the EA-1 examination as outlined on the Joint Board website at <http://www.irs.gov/Tax-Professionals/Enrolled-Actuaries/Joint-Board-Examination-Program>.

Both the EA-1 and EA-2 actuarial examinations consist solely of multiple-choice questions. Each question will be assigned from one to five points. Point values for each question will be shown at the beginning of the question. The score on each examination is based on the questions answered correctly; no credit is given for omitted answers and no credit is deducted for wrong answers.

## ALL EXAMINATIONS

Most examination questions require arithmetical computations. Each candidate should bring an electronic calculator to the examination center for use in performing computations. Calculators should be able to compute financial functions such as amortization payments, present and future values, interest rates, time periods, logarithmic functions, and exponential functions. Calculators are permitted subject to the following conditions:

The examination supervisor will ascertain that all calculators:

- have self-contained power sources,
- are noiseless, and
- do not have the capability to retain text.

A candidate generally will be allowed to take the examination using a questionable calculator. However, any questions raised as to the appropriateness of a calculator will be noted on the supervisor's report along with the candidate's number and the make and model number of the calculator; a determination will be made later as to whether the calculator was permissible.

Candidates are solely responsible for the proper functioning and operation of their calculators during the examination. In addition, candidates must indicate on their examination answer sheets both the make and the model number of any calculator used.

The use of a calculator that does not meet the conditions above constitutes an irregularity and may be sufficient cause for disqualification from the examination.

In preparing the examinations, great care is taken so that each question has one and only one correct answer based on the data given. Each question is reviewed by all members of the Advisory Committee on Actuarial Examinations and by representatives of the sponsoring organizations. Nevertheless, because mistakes can occur, a request for consideration of an alternative answer to a given question, or for disregarding a question, will be entertained by the Joint Board but only under the following conditions:

An appeal must be made in writing and postmarked not later than six months after the examination was administered.

The appellant must describe in detail the fault found with the question and an alternative answer if one is claimed.

In the case of claimed ambiguity, credence will be given to an alternative interpretation only to the extent that such interpretation is one that might be reasonably made and is not strained in the light of attendant circumstances. This policy is of positive benefit to most candidates; otherwise, it would be necessary to burden each question with numerous qualifications and stipulations that the qualified practitioner does not require and which would make the question more difficult to read.

Not all topics listed in the syllabus of this examination program are necessarily covered on any particular year's examination, nor are the examination questions necessarily confined solely to the listed topics or suggested readings. Also, it is assumed that all candidates are familiar with the basic concepts and techniques of algebra and calculus.

Candidates are urged to develop a thorough understanding of the conditions generally or specifically applicable to all examination questions as set forth later in this examination program. Conditions for each examination will be included in the applicable examination booklets.

In addition, candidates should familiarize themselves with the list of limits, tables, and formulas applicable to the EA-2 (Segment F) and EA-2 (Segment L) examinations, as set forth in this program. A copy of the appropriate list will also be included in the respective examination booklet.

# BASIC EA-1 EXAMINATION

## MAY 2019

The EA-1 examination is two-and-one-half hours in length and covers (1) the mathematics of compound interest and practical financial analysis and (2) the mathematics of life contingencies and practical demographic analysis.

Questions on the Basic EA-1 examination may contain commutation functions. **Candidates are expected to understand and be able to use commutation functions.** Candidates who are not familiar with commutation functions may wish to read the SOA Study Note "[Commutation Functions](#)".

### SYLLABUS

#### Mathematics of Compound Interest and Financial Analysis

Nominal and effective rates of interest and discount, force of interest, accumulated value factors, and present value factors.

All forms of annuities including, but not limited to annuities certain, increasing and decreasing annuities, annuities in which the payment frequency is not the same as the frequency at which interest is compounded, and perpetuities.

Amortization schedules and sinking funds, including the determination of outstanding principal, the split of payments into principal and interest, and the determination of required periodic payments.

Bonds and related securities, including bond price formulas, bond accounting, the split of periodic payments into amortization and interest, mortgages, and variable interest securities.

Determination of fund yield rates and effective rates of return using time-weighted and dollar-weighted methods.

Duration and immunization of cash flows.

Asset reporting, including realized and unrealized gains/losses, asset reconciliation, book value versus market value, and receivables.

Financial analysis, including inflation and its role, elements of risk and uncertainty, yield curves and available investments, and employee compensation increases.

#### Mathematics of Life Contingencies and Demographic Analysis

Measurements and demographic analysis of mortality, including the definition and application of standard mortality probability symbols and force of mortality.

Approximation of fractional period decrements using a uniform distribution assumption.

Measurement and demographic analysis of disability, employee turnover and employee retirement, including construction of single and multiple decrement tables.

Adjustments to mortality, disability, turnover and retirement rate tables, such as age setbacks and set forwards, select and ultimate tables, projection scales and generation adjustments.

Life annuities, including life annuities with a term certain.

Population theory, including complete and curtate expectation of life, central death rates, stationary population, and average ages in a stationary population.

Multiple life functions, probabilities and annuities.

Multiple decrement functions, including associated single decrement tables, probabilities of decrement and the construction of multiple decrement tables from associated single decrement tables.

Principles of actuarial equivalence and related calculations.

One-year term costs for ancillary benefits.

Life insurance, including basic forms, single and annual premiums, varying insurance, and insurance and annuity relationships.

## **SUGGESTED READINGS FOR EA-1**

The Advisory Committee on Actuarial Examinations believes that most (if not all) of the topics in the syllabus are covered in one or more of the following sources. There is a great deal of overlap among the following references. Candidates do not need to use them all. The references listed below are to identify available resources from which the candidate may select. This list is not meant to describe or modify the syllabus listed above.

Bowers, N.L. et. al., *Actuarial Mathematics*, (Second Edition–1997) (excluding Chapters 1, 2, 12, 13, 14, and 15); Society of Actuaries, 475 N. Martingale Road, Suite 600, Schaumburg, IL 60173-2226.

Brown, R.L., *Introduction to Mathematics of Demography*, (Third Edition–1997), Chapters 3-5; ACTEX Publications, P.O. Box 974, Winsted, CT 06098

Broverman, S.A., *Mathematics of Investment and Credit*, (Sixth Edition–2015); ACTEX Publications, P.O. Box 974, Winsted, CT 06098

Camilli, S., Herzog, T.N, London, R.L., *Models for Quantifying Risk*, Chapters (Sixth Edition, 2015); ACTEX Publications, P.O. Box 974, Winsted, CT 06098

Jordan, C.W., *Life Contingencies*, (Second Edition–1967, Second Printing 2003); Society Of Actuaries, 475 N. Martingale Road, Suite 600, Schaumburg, Il 60173-2226

Kellison, S.G., *The Theory of Interest*, (Third Edition–2008); McGraw-Hill, 6350 Crested Butte Circle, Colorado Springs, CO 80919

London, D., *Survival Models and Their Estimation*, (Third Edition–1997), Chapters 1, 3-6, 8-9; ACTEX Publications, P.O. Box 974, Winsted, CT 06098

Parmenter, M.M., *The Theory of Interest and Life Contingencies with Pension Applications: A Problem-Solving Approach*, (Third Edition–1999); ACTEX Publications, P.O. Box 974, Winsted, CT 06098

Zima, P. and Brown, R.L., *Mathematics of Finance* (2001), (Fifth Edition); McGraw-Hill Ryerson Limited, 300 Water Street, Whitby, ON, L1N 9B6

[Actuarial Standard of Practice, No. 27](#), “Selection of Economic Assumptions for Measuring Pension Obligations”

[Actuarial Standard of Practice, No. 35](#), “Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations”

## **SOCIETY OF ACTUARIES STUDY MATERIAL**

The Society of Actuaries has developed various study notes for the use of students preparing for its examinations on these subjects. These study notes are revised periodically, and new study notes may be added.

[Measurement of Investment Return](#)

[Actuarially Equivalent Benefits](#)

[Commutation Functions](#)

It should be realized, however, that such material was not necessarily drawn up with the particular nature of the Joint Board examinations in mind.

## CONDITIONS GENERALLY APPLICABLE TO ALL EA-1 EXAMINATION QUESTIONS

**If applicable, the following conditions should be considered a part of the data for each question, unless otherwise stated or implied.**

- (1) The normal retirement age is 65.
- (2) Retirement pensions commence at normal retirement age and are paid monthly for life at the beginning of each month.
- (3) There are no pre-retirement death or disability benefits.
- (4) Actuarial equivalence is based on the mortality table and interest rate assumed for funding purposes.
- (5) Interest rates that are compounded more frequently than annually are expressed as nominal rates.
- (6) Where multiple lives are involved, future lifetimes are assumed to be independent of each other.
- (7) The term “gross single premium” is equivalent to “contract single premium;” the term “net single premium” is equivalent to “single benefit premium;” the term “gross annual premium” is equivalent to “annual contract premium;” the term “net annual premium” is equivalent to “annual benefit premium.”
- (8) There are no policy loans in effect.
- (9) For a bond, the face amount and the redemption value are the same.
- (10) Interest rate equals yield rate.
- (11) The term “duration” means “Macaulay duration”.

**If applicable, the preceding conditions should be considered a part of the data for each question, unless otherwise stated or implied.**



# PENSION EA-2 (SEGMENT L) EXAMINATION

## MAY 2019

The EA-2 (Segment L) examination is two-and-one-half hours in length and covers relevant pension laws (in particular the provisions of the Employee Retirement Income Security Act (ERISA) and related laws, regulations, and rulings) as they affect pension actuarial practice. The EA-2 (Segment L) examination presupposes knowledge of the topics covered in the EA-1 examination.

**Please note that certain topics are tested on both the EA-2 (Segment L) and EA-2 (Segment F) examinations. Questions on the EA-2 (Segment F) examination will focus on the effect of the law on funding requirements. Questions on the EA-2 (Segment L) examination will focus on the effect of the law on non-funding aspects.**

Questions on the Pension EA-2 (Segment L) examination may contain commutation functions. **Candidates are expected to understand and be able to use commutation functions.** Candidates who are not familiar with commutation functions may wish to read the SOA Study Note "[Commutation Functions](#)."

### SYLLABUS

Requirements with respect to vesting, service credits, employee contributions, accrued benefits, normal retirement.

Requirements with respect to and adjustments for early retirement, postponed retirement, joint and survivor annuities, optional forms of distribution, and pre-retirement death benefits.

Determination of benefits, including permitted disparity.

Maximum benefit limitations.

Determination of top-heavy status; additional requirements with respect to top-heavy plans.

Funding-based limits on benefits and benefit accruals under single-employer defined benefit plans.

Nondiscrimination requirements including those related to plan participation, coverage, and permitted disparity.

Requirements with respect to reporting and disclosure, including underfunded plans, reductions in future benefit accruals, and reportable events.

PBGC premium requirements.

Plan termination requirements including standard and distress terminations, involuntary terminations, missing participants, guaranteed benefits, allocation of assets, plan liability and employer liability.

Withdrawal liability under multiemployer plans.

Prohibited transactions and fiduciary standards.

Excise taxes other than for funding requirements.

Standards of performance and professional conduct for enrolled actuaries.

## **SUGGESTED READINGS FOR EA-2 (SEGMENT L)**

Pension law and IRS promulgations can be found in publications of Warren, Gorham & Lamont, Commerce Clearing House, Maxwell Macmillan, Research Institute of America, and similar organizations. This list is not meant to describe or modify the syllabus listed above.

### **TITLE I OF THE EMPLOYEE RETIREMENT INCOME SECURITY ACT OF 1974, ALL AS AMENDED THROUGH NOVEMBER 30, 2018**

- 3 Definitions (excluding (1), (32), (33), (36), (37)(E)-(G), and (40))
- 101 Duty of Disclosure and Reporting (excluding subsections (g), (h), (i), (m), and (n))
- 102 Contents of summary plan description (SPD)
- 103 Contents of annual report (Form 5500)
- 104 Furnishing annual report and SPD
- 105 Pension benefit statements (excluding subsections (a)(1)(A), (a)(2)(B), and (a)(2)(C))
- 107 Retention of Records
- 403 Establishment of trust
- 404 Fiduciary duties (excluding subsection (c))
- 406 Prohibited transactions
- 408 Exemptions from prohibited transactions
- 502(c) Civil penalties (but only subsections (c)(1) – (4), (6) and (8))

Title IV of Employee Retirement Income Security Act of 1974 (ERISA), as amended through November 30, 2018.

Current PBGC Comprehensive Premium Payment Instructions

Current IRS Form 5330, including instructions

- Line 3 / Schedule C – Tax on prohibited transactions (Sections 4975(a) and (b))
- Line 14 / Schedule I – Tax on reversion of qualified plan assets to an employer (Section 4980)
- Line 15 / Schedule J – Tax on failure to provide notice of significant reduction in future accruals (Section 4980F)

### **INTERNAL REVENUE CODE SECTIONS, ALL AS AMENDED THROUGH NOVEMBER 30, 2018**

- 318 Constructive Ownership of Stock
- 401 Qualified Plans – definition (excluding subsections (f),(g),(i),(m),(n), and (o))
- 410 Minimum Participation Standards (excluding subsections (c) and (d))
- 411 Minimum Vesting Standards (excluding subsection (e))
- 413 Collectively Bargained Plans, etc.
- 414 Definitions and Special Rules – controlled group, multiemployer, mergers, HCE, SLOB, compensation (excluding subsections (d), (e), (u), and (w))
- 415 Limitations on benefits & contributions (excluding subsections (m) and (n))
- 416 Top heavy rules
- 417 Minimum Survivor Annuity Requirements
- 420 Transfers of excess pension assets to retiree health or applicable life insurance accounts
- 436 Funding based limits on benefits and benefit accruals under single employer defined benefit plans
- 1563 Definitions and Special Rules
- 4974 Excise Tax on Certain Accumulations in Qualified Retirement Plans

- 4975 Tax on Prohibited Transactions
- 4980 Tax on Reversion of Qualified Plan Assets to Employer
- 4980F Failure of Applicable Plans Reducing Benefit Accruals to Satisfy Notice Requirements
- 6057 Annual Registration
- 6058 Information Required in Connection with Certain Plans of Deferred Compensation
- 6059 Periodic Report of Actuary

Joint Board regulations (20 CFR Part 901.20) governing the performance of actuarial services under ERISA

Treasury Department Circular No. 230 (31 CFR Part 10) Section 10.3

## **IRS PROMULGATIONS**

### **REGULATIONS**

- 1.401(a)-1 Normal retirement age
- 1.401(a)(4) Nondiscrimination requirements
- 1.401(a)(9) Minimum Distribution (-1, -2, -3, -6 except Q&A-12)
- 1.401(a)(26) Minimum participation requirements
- 1.401(I) Permitted disparity
- 1.410(b) Minimum coverage requirements
- 1.411(a)(13)-1 Hybrid plans
- 1.411(b)(5)-1 Age nondiscrimination requirements
- 1.411(d)-2 Nonforfeitability of benefits, termination or partial termination of a plan
- 1.411(d)-3 Section 411(d)(6) protected benefits
- 1.411(d)-4 Section 411(d)(6) protected benefits
- 1.414(s) Definition of Compensation
- 1.414(q)-1T Highly compensated employees
- 1.415(a)-1 General rules with respect to limitations on benefits and compensations under qualified plans
- 1.415(b)-1 Limitations for defined benefit plans
- 1.415(c)-1 Limitations for defined contribution plans
- 1.415(c)-2 Compensation
- 1.415(d)-1 Cost of living adjustments
- 1.415(f)-1 Aggregating plans
- 1.415(g)-1 Disqualification of plans and trusts
- 1.415(j)-1 Limitation year
- 1.416-1 Questions and answers to top-heavy plans
- 1.417(a)(3)-1 Disclosure on relative values of optional forms of benefit
- 1.436-1(a) General rules
- 1.436-1(b) Limitation on shutdown benefits and other unpredictable contingent event benefits
- 1.436-1(c) Limitations on plan amendments increasing liability for benefits
- 1.436-1(d) Limitation on prohibited payments
- 1.436-1(e) Limitation on benefit accruals for plans with severe funding shortfalls
- 1.436-1(f) Methods to avoid or terminate benefit limitations
- 1.436-1(g) Rules of operation for periods prior to and after certification
- 1.436-1(h) Presumed underfunding for purposes of benefit limitations
- 1.436-1(j) Definitions
- 54.4980F-1 Final regulations implementing section 659 of EGTRRA
- 301.6057-1 Employee retirement benefit plans; identification of participant with deferred vested retirement benefit
- 301.6057-2 Employee retirement benefit plans; notification of change in plan status
- 301.6058-1 Information required in connection with certain plans of deferred compensation
- 301.6059-1 Periodic report of actuary

## **REVENUE RULINGS**

81-11	Minimum accrued benefits; fractional rule; break-in service
81-140	Suspension of benefits due to reemployment
89-60	Interest rates used in determining employees' "accumulated contributions"
2002-42	Partial termination merger or conversion of money purchase plan: IRC section 4980F notice and 204(h) of ERISA
2002-43	General rules relating to excise tax on prohibited transactions
2003-65	Vesting service upon resumption of accruals
2003-85	Application of IRC section 4980 excise tax
2007-43	Partial termination, turnover
2012-4	Rollover from qualified defined contribution plan to qualified defined benefit plan to obtain additional annuity
2013-17	Effect of Windsor decision on certain federal tax matters.

## **NOTICES**

97-75	Guidance relating to the amendments to the minimum distribution requirements of section 401(a)(9) of the Code made by section 1404 of the Small Business Job Protection Act of 1996, Pub. L. 104-188
2008-30	Sections III and IV – Guidance on PPA changes to IRC sections 401(a)(11) and 417
2010-15	Miscellaneous HEART Act changes
2014-19	Application of Windsor decision and Rev. Rul. 2013-17 to qualified retirement plans

## **PBGC PROMULGATIONS**

### **REGULATIONS**

4001	General and Definitions
4006	Computing Premiums
4007	Paying Premiums
4010	Notification to PBGC
4022	Guaranteed Benefits
4041	Terminations
4043	Reportable Events
4044	Allocation of Assets
4050	Missing Participants
4062	Termination Liability for Sponsor
4211	Multiemployer Plan Withdrawal Liability
4219	Multiemployer Plan Withdrawal Liability

### **PBGC TECHNICAL UPDATES**

00-7	Increased Guarantee Limit for Multiemployer Plans
08-4	Lump Sum Issues in Standard Terminations
09-2	Section 4010 Reporting
10-3	Withdrawal Liability for Multiemployer Plans in Critical Status
11-1	Reportable Events
12-1	Effect of MAP-21 on PBGC Premiums
12-2	Effect of MAP-21 on 4010 Reporting
13-1	Reportable Events
14-1	Effect of HATFA on PBGC Premiums
14-2	Effect of HATFA on 4010 Reporting
17-1	Active Participant Reduction Reportable Events

## **DOL PROMULGATIONS**

### **REGULATIONS**

#### DEFINITIONS

- 2510.3-2 Definition of pension plans
- 2510.3-21 Definition of fiduciary

#### REPORTING AND DISCLOSURE

- 2520.101-5 Annual funding notice for defined benefit plans
- 2520.101-6 Multiemployer pension plan information made available on request
- 2520.102-2 Style and format of summary plan description
- 2520.102-3 Contents of summary plan description
- 2520.103-1 Contents of the annual report
- 2520.103-10 Annual report financial schedules
- 2520.104-42 Waiver of certain actuarial information in the annual report
- 2520.104-46 Waiver of examination and report of an independent qualified public accountant for employee benefit plans with fewer than 100 participants
- 2520.104a-5 Annual report filing requirements
- 2520.104b-2 Summary plan description
- 2520.104b-3 Summary of material modifications to the plan and changes in the information required to be included in the SPD
- 2520.104b-10 Summary annual report (SAR)
- 2520.107-1 Use of electronic media for maintenance and retention of records

#### PARTICIPATION AND VESTING

- 2530.203-3 Suspension of pension benefits upon reemployment of retirees

#### FIDUCIARY RESPONSIBILITY

- 2550.403a-1 Establishment of trust
- 2550.403b-1 Exemptions from trust requirement
- 2550.404a-4 Selection of annuity providers – safe harbor for individual account plans
- 2550.408b-2 General statutory exemption for services or office space
- 2550.408c-2 Compensation for services

#### ADMINISTRATION AND ENFORCEMENT

- 83 FR 7,15-17 Federal Civil Penalties Inflation Adjustment Act Catch-Up Adjustments for ERISA penalties under the Title I sections listed above (see the final regulation in the Federal Register for 29 CFR 2575.1 through .3)

### **INTERPRETIVE BULLETINS**

- 2509.75-2 Prohibited Transactions
- 2509.75-4 Indemnification of fiduciaries
- 2509.75-5 & 2509.75-8 Questions and answers relating to fiduciary responsibility
- 2509.75-6 Section 408(c)(2) of ERISA
- 2509.75-9 Guidelines on independence of accountant retained by employee benefit plan
- 2509.95-1 [Fiduciary standard under ERISA when selecting an annuity provider for a defined benefit pension plan](#)
- 2509.2015-01 Fiduciary standard under ERISA in considering economically targeted investments.

## FIELD ASSISTANCE BULLETINS

2013-01	ERISA's Annual Funding Notice Requirements Following the Moving Ahead for Progress in the 21st Century Act
2015-01	ERISA's Annual Funding Notice Requirements Following the Highway and Transportation Funding Act of 2014
2018-01	Guidance on the fiduciary standards under ERISA relating to proxy voting and shareholder engagement activities, and consideration of "economically targeted investments"

## SOCIETY OF ACTUARIES STUDY MATERIAL

The Society of Actuaries has developed various study notes for the use of students preparing for its examinations on these subjects. These study notes are revised periodically, and new study notes may be added.

[Pension Plan Terminations](#)

[Contributory Pension Plans after OBRA '89](#)

[Tax Forms](#)

[Summary of Economic Growth and Tax Relief Reconciliation Act of 2001 \(EGTRRA\) Provisions Relating to Pension and Profit-Sharing Plans](#)

[Penalty Taxes under the U.S. Internal Revenue Code](#)

[Commutation Functions](#)

It should be realized, however, that such material was not necessarily drawn up with the particular nature of the Joint Board examinations in mind.

The Society of Actuaries also suggests the following text:

McGinn, Daniel F., *Multi-employer Retirement Plans: Handbook for the 21<sup>st</sup> Century (2003)*; International Foundation of Employee Benefits; P.O. Box 69, Brookfield, WI 53008

## AMERICAN SOCIETY OF PENSION PROFESSIONALS AND ACTUARIES STUDY MATERIAL

The American Society of Pension Professionals and Actuaries (ASPPA) suggest the following books. These books, while not designed specifically for the examination, cover much of the syllabus and more.

McGhie, G. N., *The Defined Benefit Answer Book* (Current Edition), Aspen Publishers; 7201 McKinney Circle; P.O. Box 990; Frederick, MD 21701

Tripodi, Sal L., *The ERISA Outline Book*, (Current Edition)

The ERISA Outline Book is available from [ASPPA](#).

## **CONDITIONS GENERALLY APPLICABLE TO ALL EA-2 (SEGMENT L) EXAMINATION QUESTIONS**

**If applicable, the following conditions should be considered a part of the data for each question, unless otherwise stated or implied.**

**For purposes of this examination, IRS, Treasury and PBGC releases granting disaster relief should be ignored.**

### **GENERAL CONDITIONS REGARDING PLAN PROVISIONS**

- (1) “Plan” or “pension plan” means a defined benefit pension plan.
- (2) The plan is qualified under IRC section 401. Thus, for example, any benefit formulas should be understood to be limited by other plan provisions required by the Code.
- (3) The normal retirement age is 65.
- (4) Retirement pensions commence at normal retirement age and are paid monthly for the life of the retiree at the beginning of each month.
- (5) The plan covers all active employees of the employer; there is no age or service requirement for participation. Thus, when referring to active employees, the terms “employee” and “participant” are synonymous.
- (6) There are no, and never have been any, mandatory or voluntary employee contributions.
- (7) Service for purposes of vesting and benefit accrual is credited on the basis of time elapsed since date of hire.
- (8) When the normal retirement benefit is computed as a dollar amount, or as a percentage of compensation, for each year of service, the accrued benefit is defined likewise.
- (9) Actuarial equivalence is based on the mortality table and interest rate assumed for funding purposes.
- (10) Qualified joint and survivor annuities, qualified pre-retirement survivor annuities, and any other specified forms of payment are provided in such manner that they result in no cost to the employer.
- (11) The plan has not been amended since its effective date.
- (12) The adoption date of any plan or amendment is the same as its effective date.
- (13) The terms “applicable mortality (table)” and “applicable interest (rate)” are as defined in IRC section 417(e)(3).
- (14) The plan is not an applicable defined benefit plan described in IRC section 411(a)(13)(C) unless otherwise stated.

## **GENERAL CONDITIONS REGARDING FUNDING**

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- (15) Any actuarial valuation encompasses not only all active employees but also retired employees, beneficiaries, alternate payees, and former employees entitled to vested deferred pensions.
- (16) The terms “value of plan assets,” “actuarial value of assets,” and “market value of assets” mean the values developed for purposes of IRC section 412, 430, and 431 before being adjusted for items such as the existing credit balance, funding standard carryover balance, prefunding balance, or the outstanding balances of certain bases.
- (17) All actuarial assumptions are deemed “reasonable” and meet the “best estimate” criterion.

## **GENERAL CONDITIONS REGARDING NONDISCRIMINATION TESTING**

- (18) For purposes of nondiscrimination testing under IRC section 401(a)(4), grouping of allocation rates or accrual rates has not been used.
- (19) For purposes of coverage testing under IRC section 410(b), “snapshot” testing is not used and permitted disparity is not imputed.

## **GENERAL CONDITIONS REGARDING BENEFIT RESTRICTIONS**

- (20) AFTAPs have been certified on a timely basis.
- (21) The plan has provisions for automatically restoring accruals ceased due to the application of IRC section 436, to the extent permitted by regulations, and the plan’s actuary has provided the required certification to permit such restoration.

## **MISCELLANEOUS GENERAL CONDITIONS**

- (22) All plan provisions and funding comply with all temporary and final regulations under the Internal Revenue Code and ERISA, as amended through November 30, 2018, and proposed regulations as listed in the Suggested Readings.
- (23) The plan is sponsored by a single employer; the sponsoring employer is a taxable entity and is not a member of a controlled group.
- (24) The plan is not established or maintained in connection with a collectively bargained agreement.
- (25) Employees subject to a collective bargaining agreement are non-professional. If employees covered by a collective bargaining agreement are covered by the plan, their coverage is pursuant to that collective bargaining agreement.
- (26) The plan year, the employer's limitation year, and the employer's tax year are all the calendar year.
- (27) The employer has never maintained a defined contribution plan or another defined benefit plan. No employee has been covered by a defined contribution or defined benefit plan that is required to be aggregated with his employer’s plans for purposes of IRC section 415.



- (28) Where IRC section 401(a)(17) applies, compensation does not exceed these limits unless sufficient information to apply the limits is provided.
- (29) Benefits do not exceed IRC section 415 limits unless sufficient information to apply these limits is provided.
- (30) The plan is covered by the PBGC.
- (31) All union plans are collectively bargained and all union employees are subject to collective bargaining.
- (32) The plan sponsor is not now, and never has been, in bankruptcy.
- (33) The PBGC has determined that a terminated plan was terminated for a legitimate business purpose.
- (34) References to law and regulation section numbers are for clarity and can be assumed to be correct.
- (35) Even if not so, assume all due dates are NOT Saturdays, Sundays, or holidays.
- (36) Disregard any industry-specific rules. Furthermore, plans are not eligible for PPA delayed effective dates (PPA sections 104-106).
- (37) The plan has not been top-heavy in any year.
- (38) A multiemployer plan has never applied for approval to suspend benefits as provided in IRC section 432(e)(9).

**If applicable, the preceding conditions should be considered a part of the data for each question, unless otherwise stated or implied.**

**LIMITS AND TABLES**  
**(Included with the 2019 EA-2 (Segment L) examination)**

<b>Compensation Limit IRC section 401(a)(17)</b>	
<u>Year</u>	<u>Limit</u>
2000-2001	170,000
2002-2003	200,000
2004	205,000
2005	210,000
2006	220,000
2007	225,000
2008	230,000
2009-2011	245,000
2012	250,000
2013	255,000
2014	260,000
2015-2016	265,000
2017	270,000
2018	275,000
2019	280,000

<b>Maximum Benefit Limit IRC section 415(b)</b>	
<u>Year</u>	<u>Limit at SSRA</u>
2000	135,000
2001	140,000
<u>Year</u>	<u>Limit at 65</u>
2002-2003	160,000
2004	165,000
2005	170,000
2006	175,000
2007	180,000
2008	185,000
2009-2011	195,000
2012	200,000
2013	205,000
2014-2016	210,000
2017	215,000
2018	220,000
2019	225,000

<b>Nondiscriminatory Classification Test IRC section 410(b)</b>			
Nonhighly compensated employee concentration percentage			
	<u>Safe harbor percentage</u>	<u>Unsafe harbor percentage</u>	
0-60	50.00	40.00	
61	49.25	39.25	
62	48.50	38.50	
63	47.75	37.75	
64	47.00	37.00	
65	46.25	36.25	
66	45.50	35.50	
67	44.75	34.75	
68	44.00	34.00	
69	43.25	33.25	
70	42.50	32.50	
71	41.75	31.75	
72	41.00	31.00	
73	40.25	30.25	
74	39.50	29.50	
75	38.75	28.75	
76	38.00	28.00	
77	37.25	27.25	
78	36.50	26.50	
79	35.75	25.75	
80	35.00	25.00	
81	34.25	24.25	
82	33.50	23.50	
83	32.75	22.75	
84	32.00	22.00	
85	31.25	21.25	
86	30.50	20.50	
87	29.75	20.00	
88	29.00	20.00	
89	28.25	20.00	
90	27.50	20.00	
91	26.75	20.00	
92	26.00	20.00	
93	25.25	20.00	
94	24.50	20.00	
95	23.75	20.00	
96	23.00	20.00	
97	22.25	20.00	
98	21.50	20.00	
99	20.75	20.00	

<b>Permitted Disparity Tables IRC section 401(l)</b>				
Annual factor in maximum excess allowance and maximum offset allowance percent				
Age at benefit Commencement	<u>SSRA 65</u>	<u>SSRA 66</u>	<u>SSRA 67</u>	<u>Simplified Table</u>
70	1.209	1.101	1.002	1.048
69	1.096	0.998	0.908	0.950
68	0.996	0.907	0.825	0.863
67	0.905	0.824	0.750	0.784
66	0.824	0.750	0.700	0.714
65	0.750	0.700	0.650	0.650
64	0.700	0.650	0.600	0.607
63	0.650	0.600	0.550	0.563
62	0.600	0.550	0.500	0.520
61	0.550	0.500	0.475	0.477
60	0.500	0.475	0.450	0.433
59	0.475	0.450	0.425	0.412
58	0.450	0.425	0.400	0.390
57	0.425	0.400	0.375	0.368
56	0.400	0.375	0.344	0.347
55	0.375	0.344	0.316	0.325

<b>FICA Taxable Wage Base</b>	
<u>Year</u>	<u>Limit</u>
2000	76,200
2001	80,400
2002	84,900
2003	87,000
2004	87,900
2005	90,000
2006	94,200
2007	97,500
2008	102,000
2009-2011	106,800
2012	110,100
2013	113,700
2014	117,000
2015-2016	118,500
2017	127,200
2018	128,400
2019	132,900

<b>Key Employee Compensation IRC section 416</b>		
<u>Year</u>	<u>Officer</u>	<u>1% owner</u>
2003	130,000	150,000
2004	130,000	150,000
2005	135,000	150,000
2006	140,000	150,000
2007	145,000	150,000
2008	150,000	150,000
2009-2011	160,000	150,000
2012-2013	165,000	150,000
2014-2016	170,000	150,000
2017-2018	175,000	150,000
2019	180,000	150,000

<b>Highly Compensated Employee Compensation IRC section 414(q)</b>	
<u>Year</u>	<u>Limit</u>
2000-2001	85,000
2002-2004	90,000
2005	95,000
2006	100,000
2007	100,000
2008	105,000
2009-2011	110,000
2012-2014	115,000
2015-2018	120,000
2019	125,000

**Maximum PBGC Guaranteed Life-Only Annuity at Age 65**

<u>Year</u>	<u>Monthly Benefit</u>
2001	3,392.05
2002	3,579.55
2003	3,664.77
2004	3,698.86
2005	3,801.14
2006	3,971.59
2007	4,125.00
2008	4,312.50
2009-2011	4,500.00
2012	4,653.41
2013	4,789.77
2014	4,943.18
2015-2016	5,011.36
2017	5,369.32
2018	5,420.45
2019	5,607.95

**FACTORS USED TO ADJUST MAXIMUM PBGC GUARANTEED BENEFITS FOR PAYMENTS OTHER THAN AS A SINGLE LIFE ANNUITY AT AGE 65**

<b>Commencement Age</b>	
<u>Age</u>	<u>Factor</u>
75	3.04
74	2.76
73	2.48
72	2.21
71	1.93
70	1.66
69	1.49
68	1.34
67	1.21
66	1.10
65	1.00
64	0.93
63	0.86
62	0.79
61	0.72
60	0.65
59	0.61
58	0.57
57	0.53
56	0.49
55	0.45
54	0.43
53	0.41
52	0.39
51	0.37
50	0.35
49	0.33
48	0.31
47	0.29
46	0.27
45	0.25

<b>Form of Payment Certain &amp; Life*</b>	
<u>Years</u>	<u>Factor</u>
1	0.995
2	0.990
3	0.985
4	0.980
5	0.975
6	0.965
7	0.955
8	0.945
9	0.935
10	0.925

\*Reduction decreases by 0.01 per year in excess of 10.

<b>Form of Payment Joint &amp; Contingent (J&amp;C)</b>		
with 10 yr		
<u>Percent</u>	<u>Factor</u>	<u>Certain</u>
50%	0.900	× 0.960
66 2/3 %	0.867	× 0.970
75%	0.850	× 0.975
100%	0.800	× 0.990

<b>Form of Payment Joint &amp; Survivor (J&amp;S)</b>	
<u>Percent</u>	<u>Factor</u>
50%	1.00
66 2/3 %	0.93
75%	0.90
100%	0.80

<b>Age Difference For J&amp;S and J&amp;C Beneficiary</b>		
<u>Difference</u>	<u>Younger</u>	<u>Older</u>
1	0.99	1.005
2	0.98	1.010
3	0.97	1.015
4	0.96	1.020
5	0.95	1.025
6	0.94	1.030
7	0.93	1.035
8	0.92	1.040
9	0.91	1.045
10	0.90	1.050

<b>PBGC Premium Rates</b>				
<b>Plan Years Beginning in:</b>	<b>Single Employer Plans</b>			<b>Multiemployer Plans</b>
	<b>Per Participant Rate for Flat-rate Premium</b>	<b>Variable-Rate Premium</b>		
		<b>Rate per \$1,000 UVBs</b>	<b>Per Participant Cap</b>	<b>Per Participant Rate for Flat-rate Premium</b>
2008	33.00	9.00	N/A	9.00
2009	34.00	9.00	N/A	9.00
2010	35.00	9.00	N/A	9.00
2011	35.00	9.00	N/A	9.00
2012	35.00	9.00	N/A	9.00
2013	42.00	9.00	400.00	12.00
2014	49.00	14.00	412.00	12.00
2015	57.00	24.00	418.00	26.00
2016	64.00	30.00	500.00	27.00
2017	69.00	34.00	517.00	28.00
2018	74.00	38.00	523.00	28.00
2019	80.00	43.00	541.00	29.00

# PENSION EA-2 (SEGMENT F) EXAMINATION

## NOVEMBER 2019

The EA-2 (Segment F) examination is four hours in length and covers the calculation of minimum required contributions and deductible limits under current pension law for both single-employer and multiemployer plans, along with related topics including actuarial mathematics, assumption selection, and excise taxes.

**Please note that EA-2 (Segment F) presupposes knowledge of the topics covered in the EA-1 examination and in the EA-2 (Segment L) examination. Therefore, a candidate taking the EA-2 (Segment F) examination is responsible for all topics covered on the EA-2 (Segment L) examination, even if a particular topic does not appear in the syllabus or the reading list for EA-2 (Segment F). Questions on the EA-2 (Segment F) examination will focus on the effect of the law on funding requirements. Questions on the EA-2 (Segment L) examination will focus on the effect of the law on non-funding aspects.**

Questions on the Pension EA-2 (Segment F) examination may contain commutation functions. **Candidates are expected to understand and be able to use commutation functions.** Candidates who are not familiar with commutation functions may wish to read the SOA Study Note "[Commutation Functions](#)".

### SYLLABUS

Actuarial cost methods, including unit credit, projected unit credit, entry age normal, individual level premium, aggregate, individual aggregate, attained age normal, frozen initial liability, shortfall, one-year term, and variations thereof.

Determination of the actuarial (i.e. smoothed) value of assets.

Valuation of ancillary benefits.

Selection of assumptions.

Valuation techniques for handling employee contributions.

Effect on valuation results of various patterns of experience, including experience with respect to investment earnings, changes in asset value, mortality, disability, employee turnover, changes in compensation, retirement, choice of retirement options, and Social Security.

Effect on valuation results of changes in plan provisions, actuarial cost methods, asset valuation methods, and actuarial assumptions.

Minimum funding requirements including, but not limited to:

For single employer plans (including multiple employer plans), determination of the minimum required contribution, including calculation of funding target and target normal cost, at-risk provisions, transition rules, effects of IRC section 436 on plan funding, PRA funding relief and interest stabilization provisions, funding balance(s), and waivers of minimum required contributions.

For multiemployer plans, the basics of the minimum funding standards including those for plans in critical, endangered, or critical and declining status, amortization periods, credit balance, funding standard account, amortization period extensions, and waivers of funding deficiencies.

Required quarterly contributions and liquidity shortfall.

Deductible limits for federal income tax purposes.

Penalty taxes for failures to meet minimum funding standards.

## **SUGGESTED READINGS FOR EA-2 (SEGMENT F)**

The Advisory Committee on Actuarial Examinations believes that most (if not all) of the topics in the syllabus are covered in one or more of the following sources. There is a great deal of overlap among the books listed below. Candidates do not need to use them all. The references listed below are to identify available resources from which the candidate may select. This list is not meant to describe or modify the syllabus listed above. Pension law and IRS promulgations can be found in publications of Warren, Gorham & Lamont, Commerce Clearing House, Maxwell Macmillan, Research Institute of America, and similar organizations.

**Please note that EA-2 (Segment F) presupposes knowledge of the topics covered in the EA-1 examination and in the EA-2 (Segment L) examination. Therefore, a candidate taking the EA-2 (Segment F) examination is responsible for all topics covered on the EA-2 (Segment L) examination, even if a particular topic does not appear in the syllabus or the reading list for EA-2 (Segment F).**

Aitken, W.H., *A Problem-Solving Approach to Pension Funding and Valuation*, (2<sup>nd</sup> Edition–1996); ACTEX Publications, P.O. Box 974, Winsted, CT 06098

Anderson, A.W., *Pension Mathematics for Actuaries*, (3<sup>rd</sup> Edition–2006); ACTEX Publications, P.O. Box 974, Winsted, CT 06098

Berin, B. N., *Fundamentals of Pension Mathematics*, (1989); Society of Actuaries, 475 N. Martingale Road, Suite 600, Schaumburg, IL 60173-2226

Farrimond, W., Mayer, D., Farber, D., and Matray, G., *Actuarial Cost Methods, A Review (3<sup>rd</sup> Edition–1999)*; <https://www.asppa.org/news-resources/researchwhite-papers/actuarial-cost-methods-review-3rd-edition-1999>

[Actuarial Standard of Practice No. 4](#), “Measuring Pension Obligations and Determining Pension Plan Cost or Contributions”

[Actuarial Standard of Practice No. 27](#), “Selection of Economic Assumptions for Measuring Pension Obligations”

[Actuarial Standard of Practice No. 35](#), “Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations”

[Actuarial Standard of Practice No. 51](#), “Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions”

Employee Retirement Income Security Act of 1974 (ERISA) sections 206(g), 302, 303, 304, and 305, as amended through May 31, 2019

Current Schedules SB and MB of Form 5500, including instructions

Current IRS Form 5330, including instructions

- Line 1 / Schedule A – Tax on nondeductible contributions (Section 4972)
- Line 8 / Schedule D – Tax on failure to meet minimum funding standards (Sections 4971(a) and (b))
- Line 9 / Schedule E – Tax on failure to pay liquidity shortfall (Sections 4971(f)(1) and (2))
- Line 10 / Schedule F – Tax on multiemployer plans in endangered or critical status (Sections 4971(g)(2), (3) and (4))

#### **INTERNAL REVENUE CODE SECTIONS, AS AMENDED THROUGH MAY 31, 2019**

404	Deductible employer contributions to a deferred-payment plan
412	Minimum funding standards
413	Collectively bargained plans, etc.
414(l)	Mergers and consolidations of plans or transfers of plan assets
417(e)	Restrictions on cash outs
418	Multiemployer plan reorganization rules
430	Minimum funding requirements for single-employer defined benefit pension plans
431	Minimum funding requirements for multiemployer defined benefit plans
432	Additional funding rules for multiemployer plans in endangered status or critical status
436	Funding-based limits on benefits and benefit accruals under single-employer defined benefit plans
4971	Taxes on failure to meet minimum funding standards
4972	Tax on nondeductible contributions to qualified employer plans
6059	Periodic report of actuary

#### **REGULATIONS**

1.401(a)(2)-1	Refund of mistaken contributions and withdrawal liability payments to multiemployer plans
1.404(a)-14	Special rules in connection with ERISA – Deductible Limits
11.412(c)-12	Extension of time to make contributions
1.412(c)(1)-1	Determinations to be made under funding method
1.412(c)(1)-2	Shortfall method
1.412(c)(2)-1	Valuation of plan assets; reasonable actuarial methods
1.412(c)(3)-1	Reasonable funding methods
1.414(l)-1	Mergers and consolidations of plans or transfers of plan assets
1.417(e)-1	Restrictions and valuations of distributions from plans subject to sections 401(a)(11) and 417
1.430(a)-1	Determination of minimum required contribution
1.430(d)-1	Determination of target normal cost and funding target
1.430(f)-1	Effect of prefunding balance and funding standard carryover balance
1.430(g)-1	Valuation date and valuation of plan assets
1.430(h)(2)-1	Interest rates used to determine present value
1.430(h)(3)-1	Mortality tables used to determine present value
1.430(i)-1	Special rules for plans in at-risk status
1.430(j)-1	Payment of minimum required contributions
1.431(c)(6)-1	Mortality tables used to determine current liability
1.436-1(a)	General rules
1.436-1(f)	Methods to avoid or terminate benefit limitations
1.436-1(j)	Definitions
301.6059-1	Periodic report of actuary
54.4971(c)-1	Taxes on failure to meet minimum funding standards



## **PROPOSED REGULATIONS**

- 1.432(a)-1 General rules relating to section 432
- 1.432(b)-1 Determination of status and adoption of a plan

## **REVENUE RULINGS**

- 77-2 Change in benefit structure after valuation date
- 78-48 Assumptions & methods specified in plan
- 78-331 Assumption that employees retire at normal retirement date
- 79-237 Terminating plan – funding standard account and penalty taxes
- 80-315 Supplementary benefits
- 81-13 Full funding limitation
- 81-136 Election to receive benefits less than plan provides
- 81-137 Separate funding account for separate plans
- 81-195 Effect of 415 limits on minimum and maximum contribution levels, and inability to project future increases in limits for funding purposes
- 81-213 Experience gains & losses, amortizations
- 81-214 Interest charges in funding standard account
- 81-215 Effect of 415 limits after valuation date but within plan year
- 82-125 Full funding limitation and deductible limit
- 84-62 Deductible limit under 404(a)(1)(A)
- 85-131 Reasonable allocation of past and future liabilities under unit credit method when 415 limit is involved
- 86-48 Determining “Benefits on a Termination Basis” for the purpose of a spin-off. (i.e. early retirement benefits, optional forms, ...)
- 96-7 Disability mortality tables
- 2000-20 Minimum funding standards – funding standard account – amortization bases
- 2001-51 Limitations on benefits and contributions under qualified plans
- 2003-83 Entry age normal funding method
- 2007-67 Calculation of minimum present value under IRC section 417(e)(3)

## **NOTICES**

- 2009-22 Asset valuation methods for single employer defined benefit plans under WRERA
- 2010-83 Funding relief for multiemployer defined benefit plans under PRA 2010
- 2011-3 Funding relief for single-employer plans under PRA 2010
- 2011-96 Model amendment, benefit restrictions under section 436
- 2012-61 Guidance on pension stabilization under the Moving Ahead for Progress in the 21st Century Act (MAP-21), Exclude sections III.H, T and E
- 2016-50 Updated static mortality tables for defined benefit pension plans for 2017
- 2017-44 417(e) model language

## **REVENUE PROCEDURES**

- 87-27 Plan year changes
- 90-49 Recovery of excess contributions
- 2000-40 Automatic approval for change of funding method (plans not subject to IRC section 430, as modified by Rev. Proc. 2017-56)
- 2017-56 Automatic approval for change of funding method (plans subject to IRC section 430)
- 2017-57 Changes in funding method

## **SOCIETY OF ACTUARIES STUDY MATERIAL**

The Society of Actuaries has developed various study notes for the use of students preparing for its examinations on these subjects. These study notes are revised periodically, and new study notes may be added.

[Excerpt on Plan Qualification](#)

[Assessment and Selection of Actuarial Assumptions for Measuring Pension Obligations](#)

[Penalty Taxes Under the U.S. Internal Revenue Code](#)

[Commutation Functions](#)

It should be realized, however, that such material was not necessarily drawn up with the particular nature of the Joint Board examinations in mind.

The Society of Actuaries also suggests the following text:

McGinn, Daniel F., *Multi-employer Retirement Plans: Handbook for the 21<sup>st</sup> Century (2003)*; International Foundation of Employee Benefits; P.O. Box 69, Brookfield, WI 53008

## **AMERICAN SOCIETY OF PENSION PROFESSIONALS AND ACTUARIES STUDY MATERIAL**

The American Society of Pension Professionals and Actuaries (ASPPA) suggests the following books. These books, while not designed specifically for the examination, cover much of the syllabus and more.

McGhie, G. N., *The Defined Benefit Answer Book* (Current Edition), Aspen Publishers; 7201 McKinney Circle; P.O. Box 990; Frederick, MD 21701

Tripodi, Sal L., *The ERISA Outline Book*, (Current Edition)

The ERISA Outline Book is available from [ASPPA](#).

## **CONDITIONS GENERALLY APPLICABLE TO ALL EA-2 (SEGMENT F) EXAMINATION QUESTIONS**

**If applicable, the following conditions should be considered a part of the data for each question, unless otherwise stated or implied.**

**For purposes of this examination, IRS, Treasury and PBGC releases granting disaster relief should be ignored.**

### **GENERAL CONDITIONS REGARDING PLAN PROVISIONS**

- (1) “Plan” or “pension plan” means a defined benefit pension plan.
- (2) The plan is qualified under IRC section 401. Thus, for example, any benefit formulas should be understood to be limited by other plan provisions required by the Code.
- (3) The normal retirement age is 65.
- (4) Retirement pensions commence at normal retirement age and are paid monthly for the life of the retiree at the beginning of each month.
- (5) The plan covers all active employees of the employer; there is no age or service requirement for participation. Thus, when referring to active employees, the terms “employee” and “participant” are synonymous.
- (6) There are no, and never have been any, mandatory or voluntary employee contributions.
- (7) Service for purposes of vesting and benefit accrual is credited on the basis of time elapsed since date of hire.
- (8) When the normal retirement benefit is computed as a dollar amount, or as a percentage of compensation, for each year of service, the accrued benefit is defined likewise.
- (9) Actuarial equivalence is based on the mortality table and interest rate assumed for funding purposes.
- (10) Qualified joint and survivor annuities, qualified pre-retirement survivor annuities, and any other specified forms of payment are provided in such manner that they result in no cost to the employer.
- (11) The plan has not been amended since its effective date.
- (12) The adoption date of any plan or amendment is the same as its effective date.
- (13) The terms “applicable mortality (table)” and “applicable interest (rate)” are as defined in IRC section 417(e)(3).
- (14) The plan is not an applicable defined benefit plan described in IRC section 411(a)(13)(C).

## GENERAL CONDITIONS REGARDING FUNDING

- (15) Any actuarial valuation includes not only all active employees but also retired employees, beneficiaries, alternate payees, and former employees entitled to vested deferred pensions.
- (16) The valuation date is the first day of the plan year; i.e., participant data, present values, asset values, etc. are as of that date. Also, normal costs and target normal costs are payable annually, the first being due on the valuation date.
- (17) The assumed retirement age is the normal retirement age.
- (18) All prior compensations are no greater than the earliest one provided.
- (19) There are no pre-retirement decrements.
- (20) All actuarial assumptions are deemed “reasonable” and meet the “best estimate” criterion.
- (21) The actuarial cost method, or funding method, is “reasonable” within the meaning of all relevant IRC sections and the regulations thereunder.
- (22) Where the normal cost under an actuarial cost method may be computed as either a level percentage of compensation or a level dollar amount, the level percentage approach is used if the plan benefits are based on compensation, and the level dollar approach is used if they are not.
- (23) Under the frozen initial liability method, whenever there is a change in the plan, actuarial assumptions, or asset valuation method, the unfunded liability is adjusted by adding to it the resulting change (positive or negative) in the unfunded entry age normal accrued liability due to the change. Likewise, under the attained age normal method, the unfunded liability is adjusted by adding to it the change in the unfunded unit credit accrued liability.
- (24) For multiemployer plans, all funding method changes after 1999 were made in accordance with Rev. Proc. 2000-40. Bases established because of funding method changes prior to 2000 are amortized over 10 years from the date established.
- (25) The unit credit funding method is as defined in Rev. Proc. 2000-40.
- (26) Ancillary benefits are funded using the same method as the retirement benefits. They are not funded on a term cost basis.
- (27) For purposes of spreading future normal costs under spread-gain methods, the present value of future compensation is not limited by IRC section 401(a)(17).
- (28) The terms “value of plan assets”, “actuarial value of assets” and “market value of assets” mean the values developed for purposes of IRC section 412, 430, and 431 before being adjusted for items such as the existing credit balance, funding standard carryover balance, prefunding balance, or the outstanding balances of certain bases.
- (29) The plan sponsor does not elect to reduce the amount of the funding standard carryover balance and/or prefunding balance pursuant to IRC section 430(f)(5) prior to the determination of the value of plan assets for the plan year or prior to the application of the balances in reducing the minimum required contribution for the plan year.

- (30) The plan sponsor elects to add the maximum amount permitted to the prefunding balance.
- (31) The plan has no funding standard carryover balance.
- (32) Where a prefunding or funding standard carryover balance exists, the plan was at least 80% funded in the prior year and is eligible to credit the balance(s) against the otherwise-applicable minimum required contribution.
- (33) If eligible, the plan sponsor elects to credit the prefunding and funding standard carryover balances against the otherwise-applicable minimum required contribution.
- (34) The actuarial cost method, asset valuation method, and actuarial assumptions have not been changed since the plan effective date except as required by PPA.
- (35) The term “**minimum required contribution**” means the smallest contribution for a plan year which will prevent a funding deficiency or unpaid minimum for that plan year, without regard to the alternative minimum funding standard account, and **before** reflecting items such as the existing credit balance, funding standard carryover balance, or prefunding balance, as applicable. Amounts to be amortized are not combined or offset against one another.
- (36) The term “**smallest amount that satisfies the minimum funding standard**” means the same as “minimum required contribution” **except** that it is determined **after** reflecting items such as the existing credit balance, funding standard carryover balance, or prefunding balance, as applicable. Amounts to be amortized are not combined or offset against one another.
- (37) No waivers of funding deficiencies or extensions of amortization periods have been granted.
- (38) The interest rate used for amortizing waivers and for extensions of amortization periods is the same as the valuation interest rate.
- (39) The employer is taxable, and all employer contributions for each prior plan year have been deducted by the employer for its tax year coincident with such plan year.
- (40) For purposes of determining the deductible limit for any year, the employer does not use (and has never used) the fresh-start alternative and does not combine (and has never combined) amortization bases.
- (41) The full funding limitation has never applied and there has been no early deemed amortization of shortfall amortization bases.
- (42) Expenses are paid directly by the employer, rather than from the assets of the plan, and therefore do not affect the funding of the plan.
- (43) Assumed compensation increases first apply to the year immediately following the latest year for which valuation compensation is shown.
- (44) The full funding limitations based on current liability shall be disregarded if sufficient information to determine such limitations is not provided.
- (45) For purposes of determining the deductible limit, the unfunded current liability shall be disregarded if sufficient information to determine such liability is not provided.

- (46) The plan is not currently in at-risk status nor has it ever been in at-risk status.
- (47) The terms “at-risk funding target” and “at-risk target normal cost” mean the funding target and target normal cost calculated reflecting additional actuarial assumptions and loading factors (if applicable) for a plan in at-risk status prior to the application of any five-year transition as described in IRC section 430(i)(5).
- (48) There have been no late quarterly contributions (and thus no associated interest penalties), and there is no liquidity shortfall, unless sufficient information to determine such amounts is provided.

## **GENERAL CONDITIONS REGARDING BENEFIT RESTRICTIONS**

- (49) AFTAPs have been certified on a timely basis.
- (50) The plan has provisions for automatically restoring accruals ceased due to the application of IRC section 436, to the extent permitted by regulations, and the plan’s actuary has provided the required certification to permit such restoration.

## **MISCELLANEOUS GENERAL CONDITIONS**

- (51) All plan provisions and funding calculations comply with all temporary and final regulations under the Internal Revenue Code and ERISA, as amended through May 31, 2018, and proposed regulations as listed in the Suggested Readings.
- (52) The plan is sponsored by a single employer; the sponsoring employer is a taxable entity and is not a member of a controlled group.
- (53) The plan is not established or maintained in connection with a collective bargaining agreement.
- (54) Employees subject to a collective bargaining agreement are non-professional. If employees covered by a collective bargaining agreement are covered by the plan, their coverage is pursuant to that collective bargaining agreement.
- (55) The plan year, the employer's limitation year, and the employer's tax year are all the calendar year.
- (56) The employer has never maintained a defined contribution plan or another defined benefit plan. No employee has been covered by a defined contribution or defined benefit plan that is required to be aggregated with his employer’s plans for purposes of IRC section 415.
- (57) Where IRC section 401(a)(17) applies, compensation does not exceed these limits unless sufficient information to apply the limits is provided.
- (58) Benefits do not exceed IRC section 415 limits unless sufficient information to apply these limits is provided.
- (59) The plan is covered by the PBGC.
- (60) All union plans are collectively bargained and all union employees are subject to collective bargaining.

- (61) The plan sponsor is not now, and never has been, in bankruptcy.
- (62) References to law and regulation section numbers are for clarity and can be assumed to be correct.
- (63) Even if not so, assume all due dates are NOT Saturdays, Sundays, or holidays.
- (64) Disregard any industry-specific rules. Furthermore, plans are not CSEC plans nor are they eligible for PPA delayed effective dates (PPA sections 104-106).
- (65) The plan has not been top-heavy in any year.
- (66) The plan sponsor did not elect funding relief under the Pension Relief Act of 2010 for any plan year.
- (67) A multiemployer plan has never applied for approval to suspend benefits as provided in IRC section 432(e)(9).

**If applicable, the preceding conditions should be considered a part of the data for each question, unless otherwise stated or implied.**

## IMPORTANT

THESE FACTORS MAY BE USED FOR ALL QUESTIONS UNLESS OTHER FACTORS ARE PROVIDED,  
FOR BOTH SINGLE EMPLOYER AND MULTIEMPLOYER PLANS

### 2019 EA-2 (Segment F) Examination - Selected Commutation Factors Interest Rates: 3.0%, 4.0%, and 5.0%

MALES	Interest Rate = 3.0%		Interest Rate = 4.0%		Interest Rate = 5.0%		MALES
Age	$D_x$	$N_x^{(12)}$	$D_x$	$N_x^{(12)}$	$D_x$	$N_x^{(12)}$	Age
60	163,039	2,756,535	91,311	1,383,316	51,424	703,318	60
61	157,484	2,596,042	87,352	1,293,819	48,726	653,131	61
62	152,011	2,441,066	83,506	1,208,229	46,137	605,592	62
63	146,612	2,291,530	79,765	1,126,438	43,650	560,594	63
64	141,282	2,147,361	76,126	1,048,341	41,262	518,039	64
65	136,032	2,008,486	72,593	973,834	38,972	477,826	65
66	130,857	1,874,826	69,160	902,815	36,776	439,860	66
67	125,754	1,746,308	65,824	835,184	34,668	404,051	67
68	120,729	1,622,857	62,586	770,844	32,649	370,308	68
69	115,777	1,504,397	59,441	709,700	30,713	338,546	69
70	110,891	1,390,860	56,386	651,659	28,857	308,683	70
71	106,067	1,282,180	53,414	596,635	27,076	280,643	71
72	101,297	1,178,299	50,521	544,547	25,366	254,351	72
73	96,573	1,079,167	47,702	495,317	23,722	229,738	73
74	91,890	984,741	44,952	448,875	22,142	206,740	74
75	87,239	894,983	42,267	405,154	20,621	185,296	75
76	82,614	809,864	39,642	364,090	19,156	165,346	76
77	78,011	729,359	37,073	325,626	17,744	146,838	77
78	73,424	653,450	34,557	289,706	16,382	129,718	78
79	68,849	582,123	32,093	256,278	15,069	113,938	79
80	64,284	515,366	29,676	225,293	13,802	99,449	80
81	59,727	453,171	27,308	196,702	12,579	86,208	81
82	55,198	395,520	24,994	170,455	11,404	74,167	82
83	50,702	342,383	22,738	146,495	10,275	63,281	83
84	46,247	293,723	20,540	124,764	9,194	53,501	84
85	41,845	249,494	18,406	105,202	8,160	44,781	85

FEMALES	Interest Rate = 3.0%		Interest Rate = 4.0%		Interest Rate = 5.0%		FEMALES
Age	$D_x$	$N_x^{(12)}$	$D_x$	$N_x^{(12)}$	$D_x$	$N_x^{(12)}$	Age
60	165,530	2,969,131	92,707	1,481,092	52,210	749,053	60
61	160,193	2,806,047	88,855	1,390,150	49,564	698,056	61
62	154,946	2,648,259	85,118	1,303,008	47,028	649,655	62
63	149,785	2,495,678	81,492	1,219,552	44,595	603,742	63
64	144,695	2,348,226	77,965	1,139,677	42,259	560,218	64
65	139,688	2,205,826	74,544	1,063,280	40,020	518,985	65
66	134,756	2,068,399	71,220	990,259	37,871	479,950	66
67	129,888	1,935,874	67,988	920,521	35,808	443,024	67
68	125,094	1,808,183	64,848	853,972	33,829	408,123	68
69	120,370	1,685,255	61,800	790,521	31,932	375,163	69
70	115,712	1,567,020	58,837	730,079	30,111	344,066	70
71	111,116	1,453,414	55,957	672,562	28,365	314,755	71
72	106,576	1,344,379	53,154	617,890	26,688	287,159	72
73	102,083	1,239,862	50,424	565,987	25,076	261,210	73
74	97,629	1,139,821	47,760	516,784	23,525	236,845	74
75	93,208	1,044,219	45,159	470,216	22,032	214,005	75
76	88,812	953,026	42,615	426,223	20,593	192,633	76
77	84,432	866,222	40,124	384,750	19,204	172,676	77
78	80,060	783,794	37,681	345,745	17,863	154,087	78
79	75,688	705,738	35,280	309,165	16,566	136,819	79
80	71,308	632,058	32,919	274,967	15,310	120,828	80
81	66,913	562,764	30,593	243,114	14,093	106,076	81
82	62,517	497,866	28,308	213,568	12,916	92,523	82
83	58,118	437,366	26,064	186,288	11,778	80,129	83
84	53,719	381,264	23,859	161,235	10,680	68,854	84
85	49,327	329,558	21,698	138,367	9,620	58,660	85



## IMPORTANT

THESE FACTORS MAY BE USED FOR ALL QUESTIONS UNLESS OTHER FACTORS ARE PROVIDED,  
FOR BOTH SINGLE EMPLOYER AND MULTIEMPLOYER PLANS

### 2019 EA-2 (Segment F) Examination - Selected Commutation Factors Interest Rates: 5.0%, 6.0%, and 7.0%

MALES	Interest Rate = 5.0%		Interest Rate = 6.0%		Interest Rate = 7.0%		MALES
	Age	$D_x$	$N_x^{(12)}$	$D_x$	$N_x^{(12)}$	$D_x$	
60	51,424	703,318	29,119	362,032	16,577	188,545	60
61	48,726	653,131	27,331	333,733	15,413	172,501	61
62	46,137	605,592	25,634	307,180	14,322	157,588	62
63	43,650	560,594	24,024	282,284	13,296	143,737	63
64	41,262	518,039	22,495	258,960	12,334	130,881	64
65	38,972	477,826	21,046	237,129	11,432	118,961	65
66	36,776	439,860	19,673	216,712	10,586	107,917	66
67	34,668	404,051	18,371	197,636	9,793	97,695	67
68	32,649	370,308	17,137	179,831	9,050	88,242	68
69	30,713	338,546	15,969	163,229	8,354	79,511	69
70	28,857	308,683	14,863	147,767	7,703	71,456	70
71	27,076	280,643	13,814	133,385	7,092	64,033	71
72	25,366	254,351	12,819	120,027	6,520	57,203	72
73	23,722	229,738	11,875	107,641	5,984	50,929	73
74	22,142	206,740	10,980	96,176	5,481	45,176	74
75	20,621	185,296	10,129	85,586	5,009	39,912	75
76	19,156	165,346	9,320	75,828	4,566	35,106	76
77	17,744	146,838	8,552	66,860	4,150	30,731	77
78	16,382	129,718	7,821	58,643	3,760	26,759	78
79	15,069	113,938	7,126	51,140	3,394	23,167	79
80	13,802	99,449	6,466	44,316	3,051	19,930	80
81	12,579	86,208	5,837	38,138	2,728	17,027	81
82	11,404	74,167	5,242	32,574	2,427	14,437	82
83	10,275	63,281	4,679	27,590	2,146	12,139	83
84	9,194	53,501	4,147	23,155	1,884	10,112	84
85	8,160	44,781	3,646	19,238	1,641	8,339	85

FEMALES	Interest Rate = 5.0%		Interest Rate = 6.0%		Interest Rate = 7.0%		FEMALES
	Age	$D_x$	$N_x^{(12)}$	$D_x$	$N_x^{(12)}$	$D_x$	
60	52,210	749,053	29,564	383,780	16,830	199,053	60
61	49,564	698,056	27,801	355,024	15,678	182,750	61
62	47,028	649,655	26,129	327,990	14,598	167,567	62
63	44,595	603,742	24,544	302,587	13,584	153,434	63
64	42,259	560,218	23,039	278,733	12,632	140,286	64
65	40,020	518,985	21,612	256,348	11,739	128,063	65
66	37,871	479,950	20,259	235,356	10,901	116,708	66
67	35,808	443,024	18,975	215,686	10,115	106,167	67
68	33,829	408,123	17,757	197,269	9,377	96,391	68
69	31,932	375,163	16,603	180,041	8,686	87,330	69
70	30,111	344,066	15,509	163,940	8,037	78,942	70
71	28,365	314,755	14,471	148,907	7,430	71,183	71
72	26,688	287,159	13,487	134,887	6,860	64,015	72
73	25,076	261,210	12,553	121,828	6,325	57,400	73
74	23,525	236,845	11,665	109,682	5,823	51,305	74
75	22,032	214,005	10,822	98,403	5,351	45,698	75
76	20,593	192,633	10,020	87,949	4,908	40,550	76
77	19,204	172,676	9,256	78,279	4,492	35,833	77
78	17,863	154,087	8,528	69,357	4,100	31,521	78
79	16,566	136,819	7,834	61,147	3,731	27,590	79
80	15,310	120,828	7,172	53,616	3,384	24,018	80
81	14,093	106,076	6,540	46,734	3,057	20,784	81
82	12,916	92,523	5,937	40,470	2,749	17,868	82
83	11,778	80,129	5,363	34,796	2,460	15,251	83
84	10,680	68,854	4,817	29,684	2,189	12,916	84
85	9,620	58,660	4,298	25,105	1,935	10,843	85

**2019 EA-2 (Segment F) Examination - Selected Amortization Factors**

**Segment Rates = {3.0%, 4.0%, 5.0%}**

<b><u>Remaining Period</u></b>	<b><u>Amortization Factor</u></b>
7 years	6.3293
6 years	5.5390
5 years	4.7171
4 years	3.8286
3 years	2.9135
2 years	1.9709

**Segment Rates = {5.0%, 6.0%, 7.0%}**

<b><u>Remaining Period</u></b>	<b><u>Amortization Factor</u></b>
7 years	5.9982
6 years	5.2932
5 years	4.5460
4 years	3.7232
3 years	2.8594
2 years	1.9524

**LIMITS AND TABLES**  
(Included with the 2019 EA-2 (Segment F) examination)

<b>Maximum Benefit Limit IRC section 415(b)</b>	
<u>Year</u>	<u>Limit at SSRA</u>
2000	135,000
2001	140,000
<u>Year</u>	<u>Limit at 65</u>
2002-2003	160,000
2004	165,000
2005	170,000
2006	175,000
2007	180,000
2008	185,000
2009-2011	195,000
2012	200,000
2013	205,000
2014-2016	210,000
2017	215,000
2018	220,000
2019	225,000

<b>Compensation Limit IRC section 401(a)(17)</b>	
<u>Year</u>	<u>Limit</u>
2000-2001	170,000
2002-2003	200,000
2004	205,000
2005	210,000
2006	220,000
2007	225,000
2008	230,000
2009-2011	245,000
2012	250,000
2013	255,000
2014	260,000
2015-2016	265,000
2017	270,000
2018	275,000
2019	280,000

<b>Key Employee Compensation IRC section 416</b>		
<u>Year</u>	<u>Officer</u>	<u>1% owner</u>
2003	130,000	150,000
2004	130,000	150,000
2005	135,000	150,000
2006	140,000	150,000
2007	145,000	150,000
2008	150,000	150,000
2009-2011	160,000	150,000
2012-2013	165,000	150,000
2014-2016	170,000	150,000
2017-2018	175,000	150,000
2019	180,000	150,000

<b>Highly Compensated Employee Compensation IRC section 414(q)</b>	
<u>Year</u>	<u>Limit</u>
2000-2001	85,000
2002-2004	90,000
2005	95,000
2006	100,000
2007	100,000
2008	105,000
2009-2011	110,000
2012-2014	115,000
2015-2018	120,000
2019	125,000