

ACTEX Study Manual for

EA-2F

Fall 2018 Edition

Michael J. Reilly, ASA, EA, MAAA



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New Hartford, Connecticut



Actuarial & Financial Risk Resource Materials
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Preface

The purpose of this book is to give you all of the information that you will need to take and pass the 2018 EA-2, Segment F exam that will be given in November of 2018.

This book is not meant to be a textbook on actuarial mathematics. It is assumed that anyone reading this book already is familiar with the mathematical concepts tested on the EA-1 exam. The text of the book and solutions to exam questions are also written presupposing a test candidate possesses this knowledge (for example, actuarial factors such as $\ddot{a}_n\%$ will be simply given, with no description of the calculation – and it is assumed the reader can match the values provided). Knowledge of these principles is also assumed by the creators of the examination, as noted in the 2018 Examination Program Booklet published by the Joint Board for the Enrollment of Actuaries. This book (and the exam) also assumes candidates have a working knowledge of common commutation functions.

The EA-2, Segment F exam also presupposes knowledge of the topics on the EA-2, Segment L exam, regarding federal pension tax and labor laws that apply to pensions under the Employee Retirement Income Security Act (ERISA).

Those wishing a review of specific actuarial concepts relating to pension plans should consult the book Pension Mathematics for Actuaries, (3rd Edition – 2006) by A.W. Anderson and referenced in the suggested readings located in the Examination Program mentioned above.

If you have not already secured your copy of the 2018 Examination Program Booklet, you should do so immediately. The booklet can be downloaded at no cost from the internet at the website for the Joint Board Examination program, located at:

<http://www.irs.gov/Tax-Professionals/Enrolled-Actuaries/Joint-Board-Examination-Program>

Past years exams along with answer keys (although, not explanations as to how the answers are determined, why they are correct, and what published laws affect the correct answer) can also be downloaded from this site at no charge to an exam candidate.

Your first step in preparing for the exam should be to become familiar with the design of the exam and the terms used on the test. Test questions are each worth one to five points. The test is four hours in length and the total point value is 160. This means a qualified candidate is expected to take about 1½ minutes per point, and the questions are scored based on the expected length of time a candidate will spend to get that question correct. The exact number of questions is not known and varies from year to year. Over the past several years, the number of questions has ranged from a low of 44 to a high of 59. More questions, of course, means that the individual questions are of lower point values (suggesting they can be performed more quickly) so that the total point value of the exam remains constant.

There is no penalty on the test for incorrect answers, so candidates should make an attempt to answer every question, even if the answer is just a guess. Gauge your time on each question and if you feel you are spending too much time, move on and come back to that question later. The passing score on the exam is not determined prior to the exam being given, nor is it announced once the passing score is later determined. If you simply cannot arrive at an answer without using up an excessive amount of time, it is acceptable to just guess at a question. A correct guess will improve your score and a wrong guess will not hurt it.

You should make yourself familiar with the Conditions Generally Applicable to All Examination Questions listed in the examination program booklet. All of the conditions listed will also apply to any statements or sample questions in this book, unless explicitly stated otherwise.

You should also look over the commutation factors, and the limits and tables page. These pages will be available to you during the examination, but you should become familiar with them and know how and where to quickly find needed items before the exam begins. Because the guide will present some practice questions based on the commutation tables, a copy of those tables are provided at the back of this book.

Suggested Course of Study

The great majority of questions on the exam follow the same pattern: Information is given about a plan, possibly including data taken from the actuarial valuation of one or more specific years, and possibly including information about one or more plan participants. The exam candidate is then asked to determine some other related value, for example, the minimum required funding contribution or maximum deductible contribution the employer can make for the year.

For this reason, this book is designed to teach *funding methods*, rather than just specific facts about such methods. The facts are explained, but in the context of how all of the individual facts work together to create a single coherent method of determining contribution minimums, maximums, and other related data.

It is recommended that you study the chapters in this book as a complete whole in the order that they are presented. Each chapter builds upon and expands the information in previous chapters. For this reason, it is recommended that you not move to the next chapter until you have a full grasp of the previous chapter, including understanding all of the solutions to the review questions and *why* the answers are correct. It is very useful to read the full explanation of the solutions to problems at the end of each chapter, since they contain hints as to what may be slightly changed to produce a different answer if a similar question is asked again on the next exam.

Once you have completed your study of all of the chapters of the book, take the 2014, 2015, 2016, and 2017 exams provided in this book. Try to take these past exams under the actual exam conditions you will face. Find a quiet area where you will be undisturbed for a full four hours and answer all of the questions in a single timed sitting. Do not have any reference materials other than those made available for the exam (the reference pages in the exam booklet discussed above) and use the calculator that you plan to use when taking the exam so you can become familiar with the quickest way to use it for calculations common on the exam. Make notes on which types of questions seem to take the most of your time, so you can know to skip past these types of questions on the actual exam and move back to them at the end of the exam, after you have finished the questions that you are comfortable in completing in less time.

After you have completed a past exam, read through the entire answer section for that exam, even those questions that you answered correctly, because the solutions are filled with hints about why the question may have been asked in the way that it was, and can prepare you for what similar or dissimilar types of questions you can expect to see on the upcoming exam. The teaching method of this book focuses on a question and answer approach. I believe that solving

actual questions using the funding concepts in the book is a better way to learn the concepts than a simple dry reading of those concepts. Also, for questions that you have missed, go back to the text of this book or the source material (Internal Revenue Code, Treasury regulations and other publications) to study the points that you need to master more fully.

A note on the exam solutions given in this book: The solutions are detailed, and perform the mathematical calculation step by step. Many of the questions and their solutions are repetitive and every single mathematical step is shown on every single question. This has been done to aid the reader in learning through repetition. The goal is to make the concepts in this book and in the exam questions so familiar to you that you will recognize them immediately without having to think about the terms and the rules that you have already committed to memory.

On the actual exam, of course, you should not perform the calculations step by step as is done in the solution guide. For time reasons, you should be able to perform a series of simple calculations immediately in your head, saving your time and energy to focus on the truly difficult aspect of the questions. For example, if a question gives Funding Target = \$100,000, assets = \$80,000, and Prefunding balance = \$10,000, it is hoped that you will immediately see a plan that is 70% funded, without having to waste a moment's thought on the calculations: \$80,000 minus \$10,000 equals \$70,000; and \$70,000 divided by \$100,000 equals 70%. (All of these terms will be defined in the book, so don't worry if you do not recognize them from your previous plan work experience.)

The exam called the EA-2F was introduced in 2013. Prior to 2013, the exams were named differently, and the split of the information on the exams was a bit different. All of the exams from 2013 on have followed the current syllabus (even though the official syllabus itself was not updated until the 2014 exam). If you understand all of the review questions for each chapter and the questions and solutions for the three most recent tests, you should be ready to pass the exam you will actually take in November of 2018 (which will follow the same syllabus as the last three exams).

Thank you for your purchase of this book. It is my sincere hope that its contents will help you to pass the exam the next time it is offered in November of 2018. Remember that the key to the test is to see immediately what the question is asking and how to most quickly move to that solution. For this reason, it is often a good idea to read a question from the bottom up - first read the question that is asked, and then read through the information provided. Knowing the question you are focusing on from the start may help you choose more quickly just what material is relevant and toward what purpose. This method may or may not help - some candidates prefer to read the question through from the top down. It is suggested you use the three past exams to determine what methods work best for you - *before* you step into the exam room for the actual test.

Also, once you have solved a question, it is best to read it through one last time - to make sure there is no information in the question that you may have overlooked that affects the answer. For every fact given in a question, ask yourself - Did I take that into account? - and if not, is that because it is not relevant to the solution? The exam writers do not consider any of the given information to be "red herrings," but occasionally information is provided that is not needed, if only to give at least one extra possibility of calculating a wrong answer.

The test is designed with the intent that a properly prepared test taker can and will have sufficient time to complete and answer all of the questions, but the totality of questions do contain enough detail to require the full four hours provided. The key is to be able to answer each

question in as little time as necessary, and this book attempts to install such quickness through repetition – solving so many questions so many times that you build your familiarity with the funding methods and their various components. This book attempts to make this point by providing as many practice questions and answers as practical.

Good luck on your examination in November, and if you have any suggestions about how to improve this book, or questions about any of the material it contains – please give us your feedback with the form provided on the following page.

Michael J. Reilly, ASA, EA, MAAA
May 2018

An Introduction to the EA-2 (Segment F) Exam

In 1974, Congress passed the Employee Retirement Income Security Act (ERISA), a pension law designed to protect employer sponsored retirement plans by, among other things, forcing plan sponsors to follow fundamental rules for calculating and making sufficient contributions to such plans. To be certain that plan sponsors properly followed the requirements of the law, ERISA created the enrolled actuary designation, and empowered the Joint Board for the Enrollment of Actuaries (JBEA) – a new agency under the Treasury Department – to determine the minimum requirements and testing procedures for obtaining the designation.

Currently, there are three exams needed to obtain an Enrolled Actuary designation. The first (exam EA-1) focuses on the actuarial mathematics regarding retirement plans, and the second exam (EA-2 (Segment L)) focuses on aspects of US law with regard to such plans. This book deals with the third and final exam, EA-2 (Segment F) (also called the EA-2F – this book will use both exam names interchangeably), which focuses on proper funding of defined benefit plans - including the annual determination of minimum required funding amounts, maximum tax deductible funding amounts, proper reporting of the valuation results by the plan actuary, and knowledge of excise taxes related to failure to meet minimum funding requirements or exceed deduction limits.

ERISA, as originally passed, required the Enrolled Actuary to assign, within certain guidelines, a funding method to determine the annual required funding of a defined benefit retirement plan. Over the 30+ years since ERISA was passed, Congress has enacted dozens of laws which cumulatively have made hundreds of changes, adjustments, clarifications, and additions to the original set of rules contained in ERISA, many dealing with the funding rules for plans. The IRS, in their interpretation of these laws and changes, has come to recognize and approve certain established funding methods to be tested on this exam.

In 2006, Congress passed the Pension Protection Act (known as PPA '06, or, as will be used throughout this book, simply 'PPA'). Whereas ERISA had established a group of several funding methods from which the actuary could choose, PPA mandates a single funding method that must be used by the actuary in all plan years for single employer sponsored plans. The funding methods under ERISA may still be used, however, for certain collectively bargained plans referred to as "multiemployer" plans.

An Enrolled Actuary must have a familiarity and understanding of both the funding methods under ERISA and the single funding method mandated by PPA. The chapters in this study guide will describe first the PPA method for funding single employer plans (chapters 1-7) and then multiemployer plans (chapters 8-13), although there will be some overlap between these two plan types so that some chapters will be applicable to all plans.

Syllabus

The syllabus for the 2018 EA-2F exam is reprinted below, from the Joint Board's examination booklet for 2018:

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 MAP-21 and HATFA 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 or endangered 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.

The syllabus shown above has not changed (other than some insignificant changes in wording) for the 2013 and later exams. The syllabus represents a fundamental change from the syllabus for exams prior to 2013. In connection with the change made in 2013, the EA2 exam names have changed from 2A and 2B to Segment F and Segment L, and certain topics have moved from one exam to the other. Remember that Segment F given in November presumes knowledge of Segment L given in May. Some topics that affect both segments (maximum benefits, top heavy rules, AFTAP rules) are now covered in depth on the Segment L exam, but are still found on the Segment F to the extent that they affect pension funding. These topics are covered in this guide to the extent they may appear on this exam, but you may want to review your study notes from the Segment L exam for more in-depth analysis of these topics.

What part of the syllabus should you spend the most time studying?

The ideal test candidate will become familiar with all aspects of the syllabus, and will be ready to correctly answer every question that is asked on the exam. That being said, very few candidates will score 100% on the exam, and candidates will not be expected to be perfect to receive a

passing grade. So the first step in preparing for a successful exam is to know the number and value of questions typically asked on the exam for each syllabus topic.

The following chart shows the syllabus topics one by one, along with the number of test questions and point values of that topic for the most recent three annual exams. Many questions could have been assigned to more than one topic, since they covered elements that overlap more than one area. But for simplicity, each question has been assigned to only one topic, which *best* describes the topic of the question. The topics in the chart below do not match exactly the syllabus above. The chart is meant to reflect the categories of questions actually asked on the exam. Everything in the syllabus above is covered, either directly or indirectly, in the chart below.

It is assumed that exam candidates are familiar with Actuarial Standards of Practice (ASOPs) No. 4, No. 27, and No. 35, as listed in the Joint Board Exam Booklet suggested readings, as well as all Society of Actuaries study notes listed. All ASOPs can be downloaded at no cost from the website of the Actuarial Standards Board. The study notes are available from the Society of Actuaries, which may charge a fee for the study notes. The topic of actuarial assumptions does not appear in the table below:

Here is the table, as it applies to the 2014, 2015, 2016, and 2017 exams:

Topic	2014 Questions	2015 Questions	2016 Questions	2017 Questions
PPA funding rules for single employer plans: includes determination of the minimum required contribution, funding target and target normal cost, calculation and use of funding balances, discounting employer contributions including contributions to satisfy quarterly installments, completion of Form 5500 Schedule SB, transition rules, effects of IRC section 436 (AFTAP) rules on plan funding, PRA funding relief and MAP-21 stabilization provisions, rules for multiple employer plans, and waivers of minimum required contributions	2, 5, 8, 10, 11, 13, 15, 17, 18, 21, 24, 26, 31, 32, 33, 34, 41, 51, 53 [57 points]	1, 2, 10, 13, 17, 23, 24, 30, 31, 32, 33, 34, 41, 43, 46, 49, 51, 52, 53, 56 [53 points]	1, 4, 5, 8, 11, 13, 19, 24, 25, 27, 28, 31, 35, 36, 37, 39, 40, 44, 51 [54 points]	3, 4, 5, 7, 8, 9, 12, 14, 16, 19, 20, 24, 26, 29, 32, 34, 35, 36, 37, 40, 42, 45, 47, 50, 52, 53 [72 points]
Funding rules for multiemployer plans: Actuarial cost methods, minimum funding standards, amortization periods, credit balance, funding standard account, amortization period extensions, and waivers of funding deficiencies	3, 4, 14, 20, 27, 39, 43, 47, 48, 50, 52 [41 points]	3, 4, 5, 6, 14, 15, 20, 22, 27, 29, 35, 38, 39, 47 [46 points]	6, 7, 14, 20, 26, 32, 34, 41, 47 [33 points]	10, 11, 21, 22, 23, 25, 28, 31, 39, 41, 48 [42 points]
Multiemployer plans in critical or endangered status	38 [1 point]	50 [2 points]	2, 16 [3 points]	13, 18, 54 [6 points]
Deductible limits for federal income tax purposes (both single and multiemployer plans are covered in these questions).	7, 30, 44 [8 points]	8 [3 points]	17, 50 [6 points]	27 [3 points]
Effect on valuation results of changes in plan provisions, actuarial cost methods, asset valuation methods and actuarial assumptions.	6, 12, 45 [11 points]	7, 26 [8 points]	15, 30, 43 [10 points]	38, 49 [7 points]
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.	28, 54, 55 [10 points]	28, 54 [7 points]	21, 23, 42, 45, 49 [19 points]	17, 44, 51 [10 points]

Topic	2014 Questions	2015 Questions	2016 Questions	2017 Questions
Selection of actuarial assumptions and effect of such selection on plan funding	9, 19, 25, 35, 40 [6 points]	9, 19, 21, 40, 42, 45, 57 [9 points]	38 [1 point]	30, 46 [4 points]
Determination of the actuarial (i.e. smoothed) value of assets – applicable to both single employer and multiemployer plans – albeit with different rules.	16, 22, 29, 37 [14 points]	12, 16, 48 [11 points]	9, 12, 33, 46 [15 points]	6, 33 [7 points]
Valuation of ancillary benefits.	1, 46 [5 points]	11, 37, 55 [11 points]	3, 18 [7 points]	None [0 points]
Valuation techniques for handling employee contributions.	23 [1 point]	None [0 points]	10 [3 points]	None [0 points]
Liquidity shortfall requirements	49 [4 points]	18, 44 [6 points]	22 [5 points]	1 [1 point]
Penalty taxes for failures to meet minimum funding standards.	36, 42 [2 points]	25, 36 [4 points]	29, 48 [4 points]	2, 15, 43 [8 points]

The focus of the exam is funding methods for plans (the first two topics listed in the chart), with the emphasis on plans that are sponsored by single employers (the first topic).

All of the remaining topics are, in some way, elements of the actuarial valuations that produce minimum funding levels for the year. For this reason, this study guide will focus only on the actuarial valuation and funding methods. The remaining topics will be covered as results of such funding methods. The study and knowledge of proper actuarial valuation methods – under PPA for single employer plans and under pre-PPA ERISA for multiemployer plans – is the critical feature being tested by the JBEA through the EA-2F exam.

The exam is four hours long, and the point values of all questions total 160 points. Each point theoretically represents about 1½ minutes of exam time. The exam contains several true/false questions worth one point, meaning they should take no more than about 1½ minutes of consideration. The other questions involve calculations and are scored between 2 (3 minutes) and 5 (about 7½ minutes) points.

Structure of this book

Chapters 1 through 5 of this book will comprise describe the funding method for single employer plans mandated by PPA in a piece by piece fashion. Although some of the issues discussed in the first five chapters will apply to multiemployer plans as well as single employer, the principal aim of chapters 1-5 is to get the candidate, through a process of repetition, thoroughly versed in the aspects of the PPA valuation method. This book will focus on the names, definitions, and interactions of the various terms used under the method, acceptable asset valuation methods under PPA, and the nuances of calculating the amounts needed to meet the minimum required contribution requirements of the PPA method.

Chapters 6 and 7 will discuss maximum deduction limits and at-risk plan rules as they apply to single employer plans (deduction limits for multiemployer plans will be discussed later – at-risk funding rules do not apply to multiemployer plans).

Chapters 8, 9, and 10 will discuss minimum funding rules for multiemployer plans, including various actuarial cost methods not contained in PPA, and the costs and credits applied in maintaining the Funding Standard Account for a multiemployer plan from year to year.

Chapters 11 and 12 correspond to chapters 6 and 7 for single employer plans. These two chapters will discuss the maximum deduction rules as they apply to multiemployer plans, and the rules regarding critical and endangered status of such plans when they are underfunded (as opposed to “At-Risk,” the term for an under funded single employer plan).

Each chapter will start with a discussion of the issues to be covered in that chapter, and may include questions and/or examples designed to illustrate the topics covered in the chapter. Review questions at the end of each chapter are taken from past exams. Past exams are an ample source of questions on these topics, and will introduce the reader to the format of questions given on the exam in past years.

The best preparation for future test questions, however, remains the questions that have been asked on the most recent prior exams. This book includes copies of the EA-2F exams given in November of 2014, 2015, 2016, and 2017.

The book also contains solutions to the questions on the three exams. It is recommended that you take the previous exams under simulated exam conditions and within the exam time period.

Whether you simulate taking the prior exams under exam conditions or not, it is strongly recommended that you read through all of the detailed solutions to the questions on the three most recent exams. Keep in mind the solutions are detailed, they will explore different topics in a manner that should not be duplicated on the actual exam, for time reasons, but which will be very helpful in describing to the student the way that a small change in the question would affect the manner in which the answer is arrived at.

Many exam questions hinge on one or more small points in the law which, for space reasons, cannot all be discussed in depth in the book's text, but can be addressed in the context of a specific exam solution. Learning methodology in the book's chapters and sample questions and answers is helpful, but seeing the methodology applied to actual examples of questions from previous exams will be the most productive form of studying. Once you are thoroughly familiar with the types of questions asked, the answers to the questions, and, most importantly, the *reasons* the answers are correct, you will be ready to take and pass the 2018 examination.

Chapters 1 through 5 – Single Employer Plan Funding

The first five chapters of this book explains in detail the funding method for single employer plans mandated by the Pension Protection Act of 2006 (PPA). The focus will be on the calculation of and interaction between the individual parts of the actuarial valuation, and the use of these parts to determine required contributions to meet the minimum funding standards.

READINGS (Applicable for all of chapters 1 through 5):

It is recommended that test candidates review the following source material:

Pension Protection Act of 2006 (PPA);
Congressional Technical Explanation of the PPA;
Worker, Retiree, and Employer Recovery Act of 2008 (WRERA), which contains technical corrections to PPA and additional provisions regarding the single employer defined benefit plan funding method;

Internal Revenue Code (IRC) sections

IRC Sec 412 (a), (b), and (e)
IRC Sec 430

Treasury Regulations
1.430(d)-1
1.430(f)-1
1.430(g)-1
1.430(h)(2)-1
1.430(h)(1)-1
1.430(i)-1

Proposed regulations
1.430(a)-1
1.430(j)-1

Revenue Ruling 81-137 Separate funding account for separate plans

IRS Notice 2011-3 PRA funding relief for single employer plans
Schedule SB (Form 5500) including Instructions

CHAPTER 1

DEFINITIONS

Based on recent prior year exams, about 35% of the entire test will be on some variation of determining the mandatory minimum contribution to a single employer defined benefit retirement plan, or on determining some value needed to determine such minimum mandatory contribution. Because so much of the test hinges on this calculation, the first five chapters of this book will focus on the calculation, piece by piece.

You may already have experience performing PPA method valuations for single employer plans. Even if this is so, please read through the first five chapters carefully. You may be surprised which items you currently perform are mandatory under the law, and which are choices for which there are other alternatives. Many exam questions hinge on options that are available under law, but are practiced so rarely in real life cases that some exam takers are unaware they are available.

This chapter 1 will begin by defining terms used in what will be referred to as the PPA funding method (named for the Pension Protection Act of 2006, the law that describes and mandates the funding method), which is generally the only method permitted for single employer defined benefit plans after 2007. The following terms are taken directly from Internal Revenue Code §430, except where otherwise indicated, and are commonly used on the EA-2F exam questions.

If you have been actively involved in performing actuarial valuations for single employer plans, you will already be familiar with the following terms, and can use this chapter as review of the exact method by which they are determined. If the following terms are not already familiar to you, you may have some trouble understanding new terms which refer to other terms that will be defined and discussed in later chapters. Keep in mind that the first five chapters of this book explain the PPA funding method as a block, and all of the terms used in all of the chapters will make sense once all of the first five chapters have been reviewed.

Valuation Date - A tax qualified defined benefit plan is valued by the plan's Enrolled Actuary each year on the plan valuation date. All present values are determined as of the valuation date, and all costs and contributions to the plan are adjusted by interest to the valuation date.

Under PPA, all plans with more than 100 participants must use the first day of the plan year as the actuarial valuation date for that year. This is assumed to be January 1st for exam questions, unless information suggesting a different date is given in the question. PPA does allow plans with less than 100 participants to use any other day of the year as the valuation date. In practice, nearly all plans with less than 100 participants will use either the first or last day of the plan year as the valuation date, although other dates are permitted.

Funding Target (FT) – The present value of all benefits earned or accrued as of the beginning of the year (i.e., accrued benefits attributable to service prior to any service performed in the valuation plan year).

Target Normal Cost (TNC) – The present value of benefits actually accrued or expected to accrue during the current plan year. Target Normal Cost includes any increase in benefits earned in prior years due to expected or actual increases in average compensation at the end of the current year. TNC is increased to include plan expenses paid or expected to be paid from the plan trust during the plan year. TNC reflects the cost to the *employer* of benefits accruing during the

year. Therefore, TNC is also decreased to reflect any *employee* contributions made or expected to be made to the plan.

Because the valuation date can be either at the start or end of the plan year (for plans with under 100 participants only), TNC is defined to represent the value of either benefits *actually accrued* (such benefits would be known if the actuary is performing an end of year valuation) or benefits *expected to accrue* during the year (a beginning of year actuarial valuation could be performed before any benefits actually accrue for a year, and so the TNC would have to be based on benefits expected to accrue under reasonable actuarial assumptions).

While PPA explicitly allows plans with less than 100 participants to use a valuation date other than the first day of the year, the remainder of the law, the Internal Revenue Code, the IRS regulations regarding the funding method, and the Schedule SB often seem to have been designed based on the assumption that an actuarial valuation would be performed as of the first day of the plan year. Often, special rules and exceptions have to be applied to the general rules to accommodate a valuation as of any other day of the plan year (and many of these rules are open to an actuary's discretion, rather than directly addressed by published guidance from applicable government agencies). Most questions on the exam will be based on a valuation date on the first day of the plan year (all exam questions assume a plan year equal to the calendar year, and a January 1st valuation date, unless explicitly stated otherwise in the question), and this book will assume the same in describing the funding method.

Illustration. An actuary performs a January 1st valuation. Benefits are based on a participant's Average Monthly Compensation and length of service. On January 1st, all past service and compensation are known, and the actuary calculates that all benefits of all participants have a present value of \$1,000,000 on January 1st. The actuary does not know what participants' compensation will be at year end, nor can the actuary know for sure, on January 1st, which participants will earn an additional year of service by year end. Based on reasonable assumptions regarding service and compensation increases, the actuary determines that the present value of all year end benefits, discounted to January 1st, will increase to \$1,100,000. The valuation FT is \$1,000,000 and TNC is \$100,000. More details of these calculations will be discussed in chapter 2.

TERMS RELATED TO MINIMUM FUNDING

Minimum Required Contribution (MRC) – MRC is a term defined in IRC section 430 and is determined by one of two formulas, depending on whether the plan assets on the valuation date are greater or less than the valuation FT. First compare assets to FT. Then –

(A) If assets < FT, then the plan has a funding shortfall equal to FT minus assets. The shortfall must be serviced by an amortization charge, as will be discussed below. The valuation MRC = TNC + shortfall amortization charge + waiver amortization charge (see note below);

(B) If assets => FT, then MRC = TNC – (assets – FT). However, the plan's MRC can never be less than \$0.

In all of the following examples, the valuation FT = \$1,000,000 and TNC = \$100,000 (as in the illustration above).

Example 1. Plan assets on Jan 1 are \$1,000,000. Assets minus FT = \$0; and MRC = \$100,000 - \$0 = \$100,000. The plan is exactly 100% funded at the start of the year valuation date, and the only contribution required is for the benefits expected to accrue in the upcoming year. If all assumptions are realized exactly, the plan will still be 100% funded at year end.

Example 2. Plan assets on Jan 1 are \$1,080,000. Assets minus FT = \$80,000; and MRC = \$100,000 - \$80,000 = \$20,000. The plan is more than 100% funded at the valuation date, and the plan sponsor can contribute less than the cost of benefits expected to accrue in the upcoming year, allowing the excess to fund some of those upcoming benefits. Once again, if all assumptions are realized exactly, and the employer contributes the MRC, then the plan will still be exactly 100% funded at year end.

Example 3. Plan assets on Jan 1 are \$920,000. The plan has a shortfall of \$80,000. MRC = TNC of \$100,000, plus an amortization charge to reduce the shortfall. If the shortfall charge is less than the shortfall, the plan will remain less than 100% funded at year end, but eventually, the shortfall will be reduced to \$0, and the plan will be 100% funded. Funding the plan to 100% or more of benefit liabilities is the ultimate goal of the MRC determined under the PPA funding method.

The MRC is determined by the appropriate mathematical formula given above. Despite the name of this term, it is NOT the minimum amount that an employer is required to contribute to the plan on any given date. For this reason, exam questions will often ask for the “smallest amount that satisfies the minimum funding standard” for a plan year. The interaction between the term “smallest amount” and the MRC is analyzed further in Chapter 5.

REDUCED ASSETS

The term assets in the discussion of MRC above, actually means Reduced Assets. Reduced Assets is the actuarial value of plan assets determined on the valuation date, minus the plan’s PFB and COB.

Prefunding balance (PFB) – An employer that makes contributions to a plan that are greater than the mandatory Minimum Required Contribution (MRC) may choose to add (the addition is not automatic and is not mandatory) such excess to the plan’s PFB. A plan’s PFB is defined to be \$0 at the start of the first plan year to which the PPA funding method applies (this is the start of the 2008 plan year for plans that existed prior to 2008, or the effective date of the plan for plans adopted thereafter). Thereafter, the PFB may be increased by excess contributions made by the employer, and is adjusted from year to year according to interest earned by the plan trust.

After a PFB is established, the plan sponsor may use the existing PFB to reduce the plan’s MRC (subject to certain restrictions) on a later valuation (the PFB is also reduced when it is applied in this manner). This is one of the ways, discussed in chapter 5, that the smallest amount an employer may contribute can be less than the MRC.

Example 4. The facts are the same as in Example 1, but the plan now has a PFB of \$100,000 on the Jan 1 valuation date. If the result of example 1 is not changed, the MRC of \$100,000 could be reduced to \$0 by the PFB, and the employer’s contribution would be \$0.

However, this would result in \$1,100,000 year end benefit liabilities funded by only \$1,000,000 of assets. This would fall outside of the funding method’s goal of fully funding the plan. To avoid such a result, the valuation is changed as follows:

Adjusted assets = assets – PFB = \$1,000,000 - \$100,000 = \$900,000. Adjusted assets are \$100,000 less than FT, creating a shortfall and an amortization charge. The MRC is the \$100,000 TNC plus the shortfall amortization charge. The PFB can reduce the contribution amount by \$100,000. By using the PFB, the plan sponsor has reduced the MRC from the full TNC of \$100,000 to an amortized payment on such amount. This example shows the value of the PFB – it does not reduce the amount that an employer must fund a plan in the long run, but it can allow the sponsor to amortize such payments over time.

Depending on the circumstances of the plan valuation, the fact that a plan has an excessive PFB could cause a larger MRC than would otherwise apply. For this reason, a plan sponsor may voluntarily reduce the PFB of a plan at any time, subject to conditions established by the IRS.

Carryover balance (COB) – Plans that existed prior to the 2008 plan year (the first year single employer plans were required to use the PPA funding method) and that had a funding standard account credit balance at the end of the 2007 plan year (based on the various funding methods permitted under ERISA, which will be described in Chapter 8) could convert such credit balance to a carryover balance, a newly defined term under PPA, as of the start of the 2008 plan year. The COB is similar to the PFB, except that a plan sponsor may not add to it (excess contributions can be placed into the PFB only), and the rules for reducing assets by subtracting the COB apply in different ways than subtracting the PFB (see below).

The plan's COB may be reduced for the same two reasons a PFB may be reduced (application to reduce the MRC or voluntary reduction by plan sponsor). Furthermore, no portion of the PFB may be reduced until the COB is reduced to \$0. Once the COB of a plan is reduced to \$0, it can never again be increased to any amount greater than \$0. Plans effective after 2007 (which have an initial COB of \$0) will always have a COB of \$0.

Under PPA, the COB was created as a reward to plans that had made excess funding contributions under pre-PPA ERISA. In some ways, a plan's COB is more valuable than the PFB created after PPA.

Since the year 2008, plans that continue to maintain a COB have become rarer each year, with very nearly all plans using only a PFB to reflect past excess plan contributions. As a result, many exam questions will feature a plan with excess funding in the form of a plan's PFB, but the plan's COB is stated to be (or assumed to be) \$0. However, an exam question might still describe a plan that maintains a COB, and so an exam candidate should understand both the PFB and the COB, their differences, and their similarities in actual application.

Methods of Reducing Assets. Code Section 430(f)(4) lists three different methods of reducing assets. Generally speaking, assets must be reduced by both the PFB and the COB for most valuation purposes, such as determining the plan's FTAP and AFTAP, and comparing assets to the FT for determining the MRC. However, two other definitions are also used, each for a single specific purpose.

In order to apply a COB or PFB against the current year MRC, the prior year reduced assets must be at least 80% of the prior year FT. For this purpose, the prior year assets are reduced by the PFB, but not the COB.

In determining whether a plan is exempt from establishing a new funding shortfall amortization base, (see below) assets must be reduced by the PFB if, and only if, the plan sponsor uses some amount of PFB to reduce the MRC. Assets are not reduced by COB for this purpose.

TERMS RELATING TO SHORTFALL AND SHORTFALL AMORTIZATION

All of the definitions given for this section below are determined for a given plan year and are always determined as of the plan's valuation date for such year.

Funding shortfall – The plan's FT minus the reduced assets. If the funding shortfall is \$0 or less in any plan year, the current year shortfall amortization installment and all prior plan year shortfall amortization installments are set to \$0, and the plan's shortfall amortization charge for the year is equal to \$0.

Shortfall amortization base – The plan's funding shortfall minus the sum of the present values of all remaining shortfall amortization bases for prior years. The present value of a prior year's shortfall amortization base is equal to the present value of the remaining payments to be applied to such amortization base.

Shortfall amortization installment – The plan's shortfall amortization base divided by the shortfall amortization factor. Under the law as originally written, the shortfall amortization factor is always a 7-year factor. However, passage of the Pension Relief Act (PRA) in 2010 created new amortization schedules for plan sponsors to use. The PRA amortization schedules reduced the mandatory funding for a limited period of 2008-2011.

Although the expanded amortization schedules under PRA are no longer available to plans after 2011, you may need to know the schedules for purposes of calculating the present value of remaining payments under such prior schedules.

The optional methods of calculating the shortfall amortization installment are provided in detail in Chapter 4.

Shortfall amortization charge – The sum of the current year's shortfall amortization installment and the installments for all prior years that are still outstanding.

X-Year shortfall amortization factor – The present value of a payment of \$1 over the next X years, beginning with the current year. Unlike the four previous definitions, the shortfall amortization factor is not defined in the Tax Code. However, this terminology has been used on past exams, and candidates should be familiar with the term and expect to see it again on future exams.

Additional rules for determining the shortfall amortization amounts can be found in chapter 4.

Waiver amortization charge – A payment for a prior year waiver of the employer's funding obligation, to be repaid over a specified future number of years. The decision to grant a funding waiver is made by the Treasury Department and is based on the employer's ability to make the required funding contribution. The factors for making the decision of whether to grant such a waiver are not an appropriate subject for an actuarial exam. As part of the general conditions for the exam, plans are assumed to not have any outstanding funding waivers and to never have had a

funding waiver for the history of the plan. Thus the funding waiver rule may be ignored unless a question specifically refers to such a waiver

If a plan has a funding waiver, the outstanding balance of remaining waiver re-payments is considered a base which reduces the current year shortfall amortization base in the same manner as past shortfall amortization bases. The rules to set up and amortize a funding waiver base will be discussed in detail in chapter 4.

TYPES OF PLANS

Single employer plans – As mentioned at the start of this chapter, the rules described in chapters 1 through 5 of this manual apply to single employer plans. Single employer plans include plans sponsored by a single employer, as well as plans sponsored by two or more employers that are treated as a single employer because they are members of a controlled group or Affiliated Service Group (ASG) of employers (these terms are defined in the EA-2L study materials).

Multiple employer plans – If a group of two or more employers that are not members of a controlled group or ASG choose to jointly sponsor a defined benefit plan with the same features for all employees, the plan is a multiple employer plan. Each employer that co-sponsors a multiple employer plan is subject to the minimum funding rules with respect to their own employees in the same manner as a single employer plan.

Prior to 1988, the law allowed the sponsors of a multiple employer plan to treat the entire plan as a single employer plan for funding purposes. This method creates a single funding number for the entire plan, and all of the sponsoring employers are responsible for making such contribution. When the law changed in 1988, multiple employer plans that funded as a single plan could elect to be grandfathered into this method. All plans established after 1988 did not have the option to fund as a single plan.

If an exam question is about a multiple employer plan, you should assume that each sponsoring employer is subject to the funding rules based only on benefits for its own employees. You should treat the plan as funded on a combined basis only if the question states that the plan was both established prior to 1988 and made the election to be treated as a single plan for funding purposes.

Multiemployer plans – A plan that is established pursuant to one or more collective bargaining agreements for a common group of union employees who may work for multiple employers is called a multiemployer plan. Unlike a multiple employer plan, a multiemployer plan is not sponsored by the employer(s). The plan is sponsored by the union to which the participants belong, and the employers are required to fund the plan according to the terms of the bargaining contracts.

Although the names are similar, do not confuse a multiemployer plan with a multiple employer plan. Multiemployer plans are not funded according to the rules in chapters 1 through 7, but instead the funding rules described in chapters 8 through 12. A multiemployer plan will not develop a FT, TNC, COB, or PFB – although multiemployer plan funding will have similar concepts with different names.

TERMS USED IN THIS GUIDE

Common abbreviations: Several of the terms above have been given standard abbreviations by actuaries working under PPA. For the remainder of this book the terms FT, TNC, COB, PFB, and MRC will be used instead of the term for which each stands, as has already been done in the definitions above.

In addition, the terms Internal Revenue Code, IRC, and Code shall be used interchangeably throughout the book and will reference applicable Internal Revenue Code sections as amended at the time of the exam. The term “IRS regulations” will be used interchangeably with “Treasury regulations.” “IRS regulations” is not an actual term used by the federal government (such regulations are issued by the Department of the Treasury and are technically called Treasury regulations, but IRS regulations is a term used by enrolled actuaries in common actuarial practice and so will be used freely in this book.

Any reference in this book to “single employer plans” includes multiple employer plans that are treated as a group of single employer plans.

EXAMPLES

Most of the PPA terms are related to each other through simple algebraic equations described in the above definitions. A well prepared candidate for this exam must know all of the terms and their exact meaning. For example, you should know instantly the difference between a funding shortfall charge, a funding shortfall installment, and a funding shortfall base. Doing so will save you valuable exam time spent trying to understand just what is being asked on an exam question.

To increase your familiarity with these terms and improve your speed in performing the basic calculations of these amounts, the following questions require you to determine the missing values based on the values of terms actually given. The steps for moving from the funding shortfall to the shortfall amortization charge (based on the current and prior years’ funding shortfall bases and installments) have been omitted in the following examples. These steps will be covered in more detail in Chapter 4:

1.

Funding Target:	\$200,000
Target Normal Cost:	\$ 10,000
Actuarial Value of Assets:	\$180,000
Prefunding Balance:	\$ 20,000
Reduced Assets:	???
Funding Shortfall:	???
Shortfall amortization charge:	\$ 15,000
Minimum Required Contribution:	???

2.

Funding Target:	\$400,000
Target Normal Cost:	\$ 50,000
Actuarial Value of Assets:	\$520,000
Prefunding Balance:	\$100,000
Reduced Assets:	???
Funding Shortfall:	???
Shortfall amortization charge:	???
Minimum Required Contribution:	???

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3.	Funding Target:	\$500,000
	Target Normal Cost:	???
	Actuarial Value of Assets:	\$250,000
	Prefunding Balance:	???
	Reduced Assets:	???
	Funding Shortfall:	\$300,000
	Shortfall amortization charge:	\$ 35,000
	Minimum Required Contribution:	\$ 75,000
4.	Funding Target:	\$300,000
	Target Normal Cost:	\$ 20,000
	Actuarial Value of Assets:	???
	Prefunding Balance:	\$ 0
	Reduced Assets:	\$250,000
	Funding Shortfall:	???
	Shortfall amortization charge:	\$ 25,000
	Minimum Required Contribution:	???
5.	Funding Target:	???
	Target Normal Cost:	\$ 60,000
	Actuarial Value of Assets:	\$500,000
	Prefunding Balance:	\$ 20,000
	Reduced Assets:	???
	Funding Shortfall:	???
	Shortfall amortization charge:	???
	Minimum Required Contribution:	\$ 30,000
6.	Funding Target:	???
	Target Normal Cost:	\$ 25,000
	Actuarial Value of Assets:	???
	Prefunding Balance:	\$ 0
	Reduced Assets:	\$300,000
	Funding Shortfall:	\$ 75,000
	Shortfall amortization charge:	\$ 15,000
	Minimum Required Contribution:	???
7.	Funding Target:	\$1,000,000
	Target Normal Cost:	???
	Actuarial Value of Assets:	\$1,270,000
	Prefunding Balance:	???
	Reduced Assets:	\$1,200,000
	Funding Shortfall:	\$ 0
	Shortfall amortization charge:	\$ 0
	Minimum Required Contribution:	\$ 200,000
8.	Funding Target:	\$800,000
	Target Normal Cost:	\$ 50,000
	Actuarial Value of Assets:	???
	Prefunding Balance:	\$100,000
	Reduced Assets:	\$600,000

	Funding Shortfall:	???
	Shortfall amortization charge:	???
	Minimum Required Contribution:	\$ 75,000
9.	Funding Target:	\$400,000
	Target Normal Cost:	\$ 30,000
	Actuarial Value of Assets:	???
	Prefunding Balance:	\$ 0
	Reduced Assets:	???
	Funding Shortfall:	\$250,000
	Shortfall amortization charge:	???
	Minimum Required Contribution:	\$ 50,000
10.	Funding Target:	\$10,000,000
	Target Normal Cost:	\$ 2,000,000
	Actuarial Value of Assets:	\$15,000,000
	Prefunding Balance:	???
	Reduced Assets:	\$14,800,000
	Funding Shortfall:	???
	Shortfall amortization charge:	???
	Minimum Required Contribution:	???

ANSWERS

1. Reduced assets = Actuarial value of assets – PFB
 Reduced assets = \$180,000 - \$20,000 = \$160,000

Funding shortfall = FT – Reduced assets
 Funding shortfall = \$200,000 - \$160,000 = \$40,000

Since Reduced assets are less than FT,
 MRC = TNC + shortfall amortization charge
 MRC = \$10,000 + \$15,000 = \$25,000

2. Reduced assets = Actuarial value of assets - PFB
 Reduced assets = \$520,000 - \$100,000 = \$420,000

Reduced assets are greater than FT, so funding shortfall = \$0, and shortfall amortization charge = \$0, and MRC = TNC - (Reduced assets – FT)

MRC = \$50,000 - (\$420,000 - \$400,000) = \$30,000

3. Funding shortfall = FT – Reduced assets
 \$300,000 = \$500,000 – Reduced assets; Reduced assets = \$200,000

Reduced assets = Actuarial value of assets – PFB
 \$200,000 = \$250,000 - PFB; PFB = \$50,000

Since Reduced assets are less than FT,

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$$\begin{aligned} \text{MRC} &= \text{TNC} + \text{shortfall amortization charge} \\ \$75,000 &= \text{TNC} + \$35,000; \quad \text{TNC} = \$40,000 \end{aligned}$$

$$\begin{aligned} 4. \text{ Reduced assets} &= \text{Actuarial value of assets} - \text{PFB} \\ \$250,000 &= \text{Actuarial value of assets} - \$0; \quad \text{Actuarial value of assets} = \$250,000 \end{aligned}$$

$$\begin{aligned} \text{Funding shortfall} &= \text{FT} - \text{Reduced assets} \\ \text{Funding shortfall} &= \$300,000 - \$250,000 = \$50,000 \end{aligned}$$

$$\begin{aligned} \text{Since Reduced assets are less than FT,} \\ \text{MRC} &= \text{TNC} + \text{shortfall amortization charge} \\ \text{MRC} &= \$20,000 + \$25,000 = \$45,000 \end{aligned}$$

$$\begin{aligned} 5. \text{ Reduced assets} &= \text{Actuarial value of assets} - \text{PFB} \\ \text{Reduced assets} &= \$500,000 - \$20,000 = \$480,000 \end{aligned}$$

The MRC given is less than the TNC given, therefore it is known that Reduced assets are greater than FT, and so funding shortfall = \$0, and shortfall amortization charge = \$0, and $\text{MRC} = \text{TNC} + (\text{Reduced assets} - \text{FT})$

$$\$30,000 = \$60,000 - (\$480,000 - \text{FT}); \quad \text{FT} = \$450,000$$

$$\begin{aligned} 6. \text{ Reduced assets} &= \text{Actuarial value of assets} - \text{PFB} \\ \$300,000 &= \text{Actuarial value of assets} - \$0; \quad \text{Actuarial value of assets} = \$300,000 \end{aligned}$$

$$\begin{aligned} \text{Funding shortfall} &= \text{FT} - \text{Reduced assets} \\ \$75,000 &= \text{FT} - \$300,000; \quad \text{FT} = \$375,000 \end{aligned}$$

$$\begin{aligned} \text{Since Reduced assets are less than FT,} \\ \text{MRC} &= \text{TNC} + \text{shortfall amortization charge} \\ \text{MRC} &= \$25,000 + \$15,000 = \$40,000 \end{aligned}$$

$$\begin{aligned} 7. \text{ Reduced assets} &= \text{Actuarial value of assets} - \text{COB} - \text{PFB} \\ \$1,200,000 &= \$1,270,000 - \text{PFB}; \quad \text{PFB} = \$70,000 \end{aligned}$$

Reduced assets are greater than FT, so funding shortfall = \$0, and shortfall amortization charge = \$0, and $\text{MRC} = \text{TNC} - (\text{Reduced assets} - \text{FT})$

$$\$200,000 = \text{TNC} - (\$1,200,000 - \$1,000,000); \quad \text{TNC} = \$400,000$$

$$\begin{aligned} 8. \text{ Reduced assets} &= \text{Actuarial value of assets} - \text{PFB} \\ \$600,000 &= \text{Actuarial value of assets} - \$100,000; \quad \text{Actuarial value of assets} = \$700,000 \end{aligned}$$

$$\begin{aligned} \text{Funding shortfall} &= \text{FT} - \text{Reduced assets} \\ \text{Funding shortfall} &= \$800,000 - \$600,000 = \$200,000 \end{aligned}$$

$$\begin{aligned} \text{Since Reduced assets are less than FT,} \\ \text{MRC} &= \text{TNC} + \text{shortfall amortization charge} \\ \$75,000 &= \$50,000 + \text{shortfall amortization charge}; \quad \text{shortfall amortization charge} = \$25,000 \end{aligned}$$

9. Funding shortfall = FT – Reduced assets

$$\$250,000 = \$400,000 - \text{Reduced assets}; \quad \text{Reduced assets} = \$150,000$$

Reduced assets = Actuarial value of assets – PFB

$$\$150,000 = \text{Actuarial value of assets} - \$0; \quad \text{Actuarial value of assets} = \$150,000$$

Since Reduced assets are less than FT,

MRC = TNC + shortfall amortization charge

$$\$50,000 = \$30,000 + \text{shortfall amortization charge}; \quad \text{shortfall amortization charge} = \$20,000$$

10. Reduced assets = Actuarial value of assets – PFB

$$\$14,800,000 = \$15,000,000 - \text{PFB}; \quad \text{PFB} = \$200,000$$

Reduced assets are greater than FT, so funding shortfall = \$0, and shortfall amortization charge = \$0, and MRC = TNC - (Reduced assets – FT)

$$\text{MRC} = \$2,000,000 - (\$14,800,000 - \$10,000,000)$$

The result of this equation is less than \$0, but since the MRC can never be reduced below \$0, the MRC in this question is deemed to be equal to \$0.

REVIEW QUESTIONS

- 1-1. For the 2008 plan year, the actuarial valuation date for all single-employer plans must be the first day of the plan year.

Is the above statement true or false?

- (A) True
(B) False

- 1-2. Funding standard carryover and prefunding balances:

	1/1/2010	1/1/2011
Funding standard carryover balance	\$5,500,000	\$5,610,000
Prefunding balance	\$5,000,000	\$5,100,000

Selected valuation results:

	1/1/2010	1/1/2011
Funding target	\$100,000,000	\$120,000,000
Actuarial (market) value of assets	\$90,000,000	\$100,000,000

Consider the following statement:

The funding standard carryover balance may be applied to the **minimum required contribution** for 2011.

Is the above statement true or false?

- (A) True
(B) False

- 1-3. Consider the following statements:

I. Both the prior year's funding standard carryover and prefunding balances must be subtracted from the prior year's actuarial value of assets to determine if the plan is in at-risk status for the current year.

II. Both the funding standard carryover and prefunding balances must be subtracted from the actuarial value of assets to determine if a plan is exempt from establishing a new shortfall amortization base when calculating the minimum required contribution.

III. Both the prior year's funding standard carryover balance and prefunding balance must be subtracted from the prior year's actuarial value of assets to determine if the current year's funding standard carryover and pre-funding balances may be used to reduce the current year's minimum required contribution.

Which, if any, of the above statement(s) is (are) true?

- (A) I only
(B) II only
(C) III only
(D) I, II, and III
(E) The correct answer is not given by (A), (B), (C), or (D) above.

- 1-4. The plan does not offer any accelerated benefit options

	1/1/2010	1/1/2011
Funding standard carryover balance	\$100,000	\$100,000
Prefunding balance	\$150,000	\$300,000

Selected valuation results:

	1/1/2010	1/1/2011
Actuarial (market) value of assets	\$1,000,000	\$1,250,000
Funding target	\$1,000,000	\$1,250,000

Consider the following statements for the 2011 plan year:

- I. The funding standard carryover and prefunding balances can be used to reduce the minimum required contribution.
- II. The plan is subject to quarterly contribution requirements.
- III. The plan's funding shortfall is \$0.

Which, if any, of the above statement(s) is/are true?

- (A) I and II only
 (B) I and III only
 (C) II and III only
 (D) I, II, and III
 (E) The correct answer is not given by (A), (B), (C), or (D) above

- 1-5. Funding standard carryover balance as of 1/1/2009: \$25,000.

Prefunding balance as of 1/1/2009: \$36,000.
 Minimum required contribution for 2009: \$150,000.

Consider the following statement:

On 1/1/2009, the plan sponsor has the option of offsetting the minimum required contribution for the 2009 plan year by either the funding standard carryover balance or the prefunding balance.

Is the above statement true or false?

- (A) True
 (B) False

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1-6. Plan effective date: 1/1/2000.

	1/1/2009	1/1/2010
Funding standard carryover balance	\$1,250,000	\$1,325,000
Prefunding balance	950,000	1,100,000
Selected valuation results:		
Actuarial (market) value of assets	1/1/2009 \$25,500,000	1/1/2010 \$32,600,000
Funding target	25,000,000	32,500,000

The plan sponsor elects to use the carryover balance and prefunding balance, to the extent available, to offset the minimum required contribution in 2010. The plan is not subject to the PPA transitional rule.

Consider the following statements:

I. The plan sponsor may use the carryover balance toward the minimum funding requirement at 1/1/2010.

II. The plan is exempt from establishing a shortfall amortization base as of 1/1/2010.

III. The plan sponsor is subject to quarterly contribution requirements in 2010.

Which, if any, of the above statement(s) is (are) true?

(A) I and II only

(B) I and III only

(C) II and III only

(D) I, II, and III

(E) The correct answer is not given by (A), (B), (C), or (D) above.