AMERICAN SOCIETY OF ENROLLED ACTUARIES
JOINT BOARD FOR THE ENROLLMENT OF ACTUARIES
SOCIETY OF ACTUARIES

Enrolled Actuaries Pension Examination, Segment F

EA-2, Segment F

Date: Thursday, November 7, 2024

INSTRUCTIONS TO CANDIDATES

1. Special conditions generally applicable to all questions on this examination are found in a separate .PDF on the computer screen.

2. All questions should be answered in accordance with laws, rules and regulations in effect as of May 31, 2024.

3. This examination consists of 58 multiple-choice questions of varying value. The point value for each question is shown in parentheses at the beginning of each question. Total point value is 160.

4. Your score will be based on the point values for the questions that you answer correctly. No credit will be given for omitted answers and no credit will be lost for wrong answers; hence, you should answer all questions even those for which you have to guess. Answer choices C, D, and E will be considered incorrect answers on True-False questions.

5. Do not spend too much time on any one question. If a question seems too difficult, leave it and go on.

6. While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the computer screen.

7. Use the scratch paper booklets provided by Prometric for your scratch work. Extra scratch paper booklets are available if you run out of scratch paper in the booklet provided to you.

Answer Key EA-2F Fall 2024
August 30, 2024

Question	Answer		Question	Answer
1	A		31	D
2	B		32	B
3	B		33	C
4	C		34	D
5	B		35	A
6	D		36	B
7	C		37	D
8	B		38	D
9	D		39	E
10	D		40	C
11	C		41	B
12	A		42	B
13	A		43	C
14	B		44	C
15	A		45	D
16	C		46	A
17	C		47	D
18	A		48	A
19	E		49	C
20	B		50	A
21	E		51	B
22	C		52	A
23	A		53	C
24	A		54	D
25	A		55	B
26	A		56	D
27	E		57	A
28	E		58	B
29	B			
30	D			

Data for Question 1 (1 point)

A plan is not at-risk.

Consider the following statement:

> The target normal cost is the excess of (i) the sum of the present value of all benefits that are expected to accrue or to be earned under the plan during the plan year and the amount of plan-related expenses expected to be paid from plan assets during the plan year, over (ii) the amount of mandatory employee contributions expected to be made during the plan year.

Question 1

Is the above statement true or false?

(A) True

(B) False

Data for Question 2 (4 points)

Valuation Date: 1/1/2025

Optional form of payment: Single sum based on the greater of the lump sum determined under the plan's actuarial equivalence or under IRC section 417(e)(3).

Funding segment rates: {5.00%, 6.00%, 7.00%}

Plan's actuarial equivalence: Applicable mortality table under IRC section 417(e)(3) and 6.00%

The plan actuary assumes that 100% of participants elect a single sum.

Selected information for participant Smith as of 1/1/2025:

Gender	Female
Date of birth	1/1/1962
Accrued benefit	$850 per month

Age 65 immediate annuity factor using the plan's actuarial equivalence: 11.100

Selected commutation functions using 417(e) mortality and 417(e) segment rates:

	5%	6%	7%
$N^{(12)}_{65}$	524,267		
$N^{(12)}_{68}$	412,185	199,353	
$N^{(12)}_{83}$		34,453	15,109
D_{65}	40,413	21,825	11,855

$X is the funding target for Smith as of 1/1/2025.

Question 2

In what range is ***$X***?

(A) Less than $105,000

(B) $105,000 but less than $110,000

(C) $110,000 but less than $115,000

(D) $115,000 but less than $120,000

(E) $120,000 or more

Data for Question 3 (4 points)

Valuation Date: 1/1/2025

Selected information as of 1/1/2024:

Funding standard carryover balance	$45,000
Prefunding balance	100,000
Actuarial (market) value of assets	1,500,000
Funding target	1,450,000
Target normal cost	275,000
Effective interest rate	5.00%
Total shortfall amortization installments	$5,000

The actual rate of return on assets for 2024: Negative 0.50%

There were no required quarterly installments for the 2024 plan year.

Sole contribution for 2024 plan year made on 9/1/2025: $200,000

On 9/15/2025, the plan sponsor elects to apply the carryover and prefunding balance in **the smallest amount that satisfies the minimum funding standard** for the 2024 plan year.

$X is the prefunding balance as of 1/1/2025.

Question 3

In what range is ***$X***?

(A) Less than $25,000

(B) $25,000 but less than $50,000

(C) $50,000 but less than $75,000

(D) $75,000 but less than $100,000

(E) $100,000 or more

Data for Question 4 (3 points)

Prior valuation date: 1/1/2024

Plan termination date: 7/31/2025

Actuarial value of assets as of 7/31/2025: $5,000,000

The plan sponsor contributes $50,000 for the 2025 plan year on 8/5/2025.

Neither the enrolled actuary nor the business organization providing actuarial services has changed since the preceding valuation date.

The enrolled actuary is considering changing the valuation date to 7/31/2025.

Consider the following conditions:

I. The plan had exactly 90 participants on each day of the prior plan year.

II. The plan is currently under an Employee Plans examination.

III. As of 7/31/2025, total benefit liabilities are $5,025,000 and total vested benefit liabilities are $4,750,000.

Question 4

Which, if any, of the conditions above would make the valuation date funding method change ineligible for automatic approval?

(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

Data for Question 5 (3 points)

Type of plan: Multiemployer

Valuation Date: 1/1/2025

Actuarial cost method: Entry age normal

Valuation interest rate: 7.50%

Funding standard account bases as of 1/1/2024:

	Years remaining	Outstanding balance
Combined charge base	6	$6,500,000
Actuarial gain	10	750,000
Actuarial loss	14	800,000

An application for a 5-year extension of the amortization periods was not submitted.

$***X*** is the sum of the outstanding balances as of 1/1/2025 of all bases that existed before 2025.

Question 5

In what range is ***$X***?

(A) Less than $5,500,000

(B) $5,500,000 but less than $6,000,000

(C) $6,000,000 but less than $6,500,000

(D) $6,500,000 but less than $7,000,000

(E) $7,000,000 or more

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Data for Question 6 (3 points)

Type of plan: Multiemployer

Valuation Date: 1/1/2025

Actuarial cost method: Projected unit credit

Valuation interest rate: 7.00%

Normal retirement benefit: 70% of final year's compensation

The normal retirement benefit is fully accrued (other than the effect of future pay increases) after 30 years of service.

Assumed rate of compensation increases: 3.00% per year

Selected data for participant Smith:

Gender	Female
Date of birth	1/1/1964
Date of hire	1/1/1992
2024 compensation	$95,000

$X is Smith's accrued liability as of 1/1/2025.

Question 6

In what range is ***$X***?

(A) Less than $570,000

(B) $570,000 but less than $590,000

(C) $590,000 but less than $610,000

(D) $610,000 but less than $630,000

(E) $630,000 or more

Data for Question 7 (3 points)

Select valuation results:

	1/1/2024	1/1/2025
Actuarial (market) value of assets	$10,000,000	$11,140,000
Funding target	10,000,000	12,000,000
Target normal cost	1,250,000	1,000,000
Shortfall amortization charge	50,000	82,000
Prefunding balance	519,000	0

$X is the required quarterly installment for the 2025 plan year.

Question 7

In what range is ***$X***?

(A) Less than $180,000

(B) $180,000 but less than $215,000

(C) $215,000 but less than $250,000

(D) $250,000 but less than $285,000

(E) $285,000 or more

Data for Question 8 (3 points)

Selected valuation results:

	1/1/2024	1/1/2025
Actuarial (market) value of assets	$5,000,000	
Funding target	5,000,000	$6,000,000
Target normal cost	500,000	750,000
Minimum required contribution	500,000	
Prefunding balance	0	0
Effective interest rate	6.00%	

The plan was not subject to quarterly required contributions for the 2024 plan year.

2025 Segment rates: {5.00%, 6.00%, 7.00%}

Actual rate of return on plan assets for 2024: Negative 25.00%

There were no benefit disbursements during 2024.

The sole contribution for the 2024 plan year in the **smallest amount that satisfies the minimum funding standard** was made on 12/31/2024.

$X is the decrease in the minimum required contribution for 2025 if the actual rate of return on plan assets for 2024 had been 0.00%.

Question 8

In what range is ***$X***?

(A) Less than $118,000

(B) $118,000 but less than $123,000

(C) $123,000 but less than $128,000

(D) $128,000 but less than $133,000

(E) $133,000 or more

Data for Question 9 (4 points)

Valuation date: 1/1/2025

Segment rates: {5.00%, 6.00%, 7.00%}

Selected data for all participants:	Smith	Jones
Status	Disabled	Disabled
Age	45	65
Disabled under Title II of the Social Security Act	No	Yes
Monthly accrued disability benefit paid as a life annuity	1,000	1,000
Benefit commencement date	1/1/2045	1/1/2020

Both disabilities occurred after 1994.

There are no pre-commencement decrements assumed.

Selected commutation functions:

	5.00% Healthy Mortality	6.00% Healthy Mortality	7.00% Healthy Mortality	5.00% Disabled Mortality	6.00% Disabled Mortality	7.00% Disabled Mortality
$N_{65}^{(12)}$	48,114	23,873	11,975	42,250	21,482	11,022
$N_{70}^{(12)}$	31,145	14,909	7,209	21,110	10,300	5,070
$N_{85}^{(12)}$	4,515	1,940	841	1,422	614	267
D_{65}	3,905	2,109	1,146	5,544	2,994	1,626

The plan actuary uses separate mortality tables for disabled participants in the case of disabilities occurring after 1994 to the extent permitted under IRC section 430(h)(3)(D)(ii).

$X is the funding target as of 1/1/2025.

Question 9

In what range is ***$X***?

(A) Less than $106,500

(B) $106,500 but less than $112,500

(C) $112,500 but less than $118,500

(D) $118,500 but less than $124,500

(E) $124,500 or more

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Data for Question 10 (4 points)

Type of plan: Multiemployer

Valuation date: 1/1/2025

Actuarial cost method: Attained age normal

Asset valuation method	
Before 2025	Smoothed market value with phase-in
After 2024	Fair market value

Valuation interest rate: 7.00%

Selected valuation results as of 1/1/2025 before the change in asset valuation method:

Amortization charges	$0
Amortization credits	0
Actuarial value of assets	10,500,000
Accrued liability	10,000,000
Credit balance	500,000
Normal cost	900,000

Fair market value of assets as of 1/1/2025: $9,500,000

$X is the **smallest amount that satisfies the minimum funding standard** as of 12/31/2025 for the 2025 plan year after reflecting the change in the asset valuation method.

Question 10

In what range is ***$X***?

(A) Less than $510,000

(B) $510,000 but less than $535,000

(C) $535,000 but less than $560,000

(D) $560,000 but less than $585,000

(E) $585,000 or more

Data for Question 11 (4 points)

Plan type: Multiemployer

Valuation date: 1/1/2025

Actuarial cost method: Entry age normal

Valuation interest rate: 7.00%

Current liability interest rate: 4.75%

Selected valuation results as of 1/1/2025:

Actuarial (market) value of assets	$5,500,000
Actuarial accrued liability	6,500,000
Normal cost	650,000
Credit balance	0
2023 experience gain amortization charge under IRC 404	70,000
Current liability	7,000,000
Current liability normal cost	750,000

There are no pre-2023 amortizations.

During 2025, on the first day of each month, benefit payments in the amount of $15,000 are expected to be paid.

$X is the maximum deductible limit for the 2025 plan year.

Question 11

In what range is ***$X***?

(A) Less than $5,230,000

(B) $5,230,000 but less than $5,330,000

(C) $5,330,000 but less than $5,430,000

(D) $5,430,000 but less than $5,530,000

(E) $5,530,000 or more

Data for Question 12 (1 point)

Valuation date: 1/1/2025

Asset valuation method: Fair market value of assets

The plan sponsor is a corporation.

2025 AFTAP: 95.00%

Benefits are not related to compensation, the plan has never been amended, and the number of participants has always been less than 100.

Consider the following statement:

> For the 2025 plan year, the plan sponsor may contribute and deduct 150% of the funding target, plus the target normal cost under IRC section 404, minus the fair market value of assets as of 1/1/2025.

Question 12

Is the above statement true or false?

(A) True

(B) False

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Data for Question 13 (2 points)

Plan effective date: 1/1/2015

Valuation date: 1/1/2025

FTAP as of 1/1/2024 (without regard to at-risk assumptions): 75.00%

FTAP as of 1/1/2024 (determined using at-risk assumptions): 65.00%

There were 505 participants in the plan on 12/31/2024.

Consider the following statement:

The plan is in at-risk status for the 2025 plan year.

Question 13

Is the above statement true or false?

(A) True

(B) False

Data for Question 14 (4 points)

Valuation date: 1/1/2025

Type of plan: Statutory hybrid (cash balance)

Pay credit: 20.00% of compensation

Interest crediting rate: 4.00% per year

The plan offers lump sums equal to the account balance upon termination.

Segment rates: {5.00%, 6.00%, 7.00%}

FTAP as of 1/1/2024: 110.00%

Actuarial value of assets as of 1/1/2025: $43,000

2025 funding balances: $0

Assumed rate of compensation increases: 0% per year

Selected data for sole participant Smith:

Date of birth	1/1/1963
Date of hire	1/1/2022
2022 compensation	$65,000
2023 compensation	75,000
2024 compensation	85,000

The plan actuary assumes that participants elect the lump sum form of payment

$X is the **minimum required contribution** as of 1/1/2025.

Question 14

In what range is ***$X***?

(A) Less than $16,000

(B) $16,000 but less than $16,700

(C) $16,700 but less than $17,400

(D) $17,400 but less than $18,100

(E) $18,100 or more

Data for Question 15 (3 points)

Valuation date: 1/1/2025

Asset valuation method: Fair market value

Market value of assets (excluding receivables) as of 1/1/2025: $200,000

Funding balances at 1/1/2025: $0

2024 effective interest rate: 5.50%

2025 effective interest rate: 5.00%

Information for all contributions made for the 2024 plan year:

Date	Contribution amount
8/15/2025	$100,000
9/1/2025	125,000
10/1/2025	50,000

The contributions shown above for the 2024 plan year were exactly enough to satisfy the 2024 minimum funding standard at the date the final contribution was made.

$X is the actuarial value of assets for minimum funding purposes under IRC section 430 as of 1/1/2025.

Question 15

In what range is ***$X***?

(A) Less than $430,000

(B) $430,000 but less than $470,000

(C) $470,000 but less than $510,000

(D) $510,000 but less than $550,000

(E) $550,000 or more

Data for Question 16 (4 points)

Type of plan: Multiemployer

Plan effective date: 1/1/2023

Valuation date: 1/1/2025

Actuarial cost method: Entry age normal

Valuation interest rate before 2025: 6.00%

Valuation interest rate after 2024: 5.00%

Increase as of 1/1/2025 due to the change in the valuation interest rate:

Accrued liability	$300,000
Normal cost	50,000

2024 amortization charge for experience loss base established 1/1/2024: $75,000

Experience loss during 2024: $200,000

No other amortization bases were established before 1/1/2025.

$X is the sum of all amortization charges for the 2025 plan year.

Question 16

In what range is ***$X***?

(A) Less than $112,000

(B) $112,000 but less than $115,000

(C) $115,000 but less than $118,000

(D) $118,000 but less than $121,000

(E) $121,000 or more

Data for Question 17 (4 points)

Type of plan: Multiemployer

Valuation date: 1/1/2025

Actuarial cost method: Unit credit

Asset valuation method: Smoothed market value using a smoothing period of three years, as described in Rev. Proc. 2000-40.

Valuation interest rate: 6.00%

Selected plan information:

	2023	2024	2025
Market value of assets, 1/1	$800,000	$900,000	$1,400,000
Benefit payments	50,000	55,000	
Expenses paid from plan assets	5,000	5,000	

Benefit payments are assumed to be paid on 7/1.

Expenses are assumed to be paid on 10/1.

Sole contribution for the 2023 plan year made on 12/1/2023: $100,000

Sole contribution for the 2024 plan year made on 12/1/2024: $150,000

$X is the actuarial value of assets as of 1/1/2025.

Question 17

In what range is ***$X***?

(A) Less than $1,100,000

(B) $1,100,000 but less than $1,140,000

(C) $1,140,000 but less than $1,180,000

(D) $1,180,000 but less than $1,220,000

(E) $1,220,000 or more

Data for Question 18 (3 points)

Valuation date: 1/1/2025

Segment rates: {5.00%, 6.00%, 7.00%}

Selected information as of 1/1/2025:

Funding balances	$0
Actuarial (market) value of assets	25,000
Funding target	36,000
Present value of all benefits expected to accrue or be earned during the year	3,000
Administrative expenses expected to be paid directly by the plan sponsor at beginning of year	250
Present value of mandatory employee contributions expected to be made during the year	450

There are no amortization charges for bases established before 1/1/2025.

$X is the **minimum required contribution** for 2025.

Question 18

In what range is ***$X***?

(A) Less than $3,800

(B) $3,800 but less than $4,100

(C) $4,100 but less than $4,400

(D) $4,400 but less than $4,700

(E) $4,700 or more

Data for Question 19 (3 points)

Valuation date: 1/1/2025

A plan is in at-risk status for 2019, 2021, 2022, 2023, 2024 and 2025.

The early retirement eligibility for the plan is age 55.

The plan offers a lump sum optional form of payment.

The lump sum option is the most valuable benefit for use in at-risk calculations.

Data for selected participants as of 1/1/2025:

	Smith	Brown
Years of service	10	10
Age	45	56
Status	Active	Active

Consider the following statements regarding the special assumptions required to determine the at-risk funding target as of 1/1/2025:

I. Smith is assumed to retire at age 55

II. Brown is assumed to retire immediately

III. Smith and Brown are assumed to take a lump sum at retirement

Question 19

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

(A) None

(B) I only

(C) II only

(D) III only

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

Data for Question 20 (1 point)

Valuation date: 1/1/2025

A plan amendment increases the benefit accrual for service rendered after 6/30/2025.

Plan amendment adoption date: 4/1/2025

Plan amendment effective date: 7/1/2025

Consider the following statement:

> The effect of the plan amendment cannot be reflected in the 1/1/2025 target normal cost.

Question 20

Is the above statement true or false?

(A) True

(B) False

Data for Question 21 (4 points)

Valuation date: 1/1/2025

Normal retirement benefit: 1.50% of the final three-year average compensation per year of service

Disability eligibility: Age 55 with 10 years of service

Disability benefit: Projected benefit at normal retirement age based on projected service to normal retirement and final year of compensation at disability, payable immediately upon disability

Assumed disabled mortality is the same as assumed healthy mortality.

Pre-retirement mortality is assumed.

Segment rates: {5.00%, 6.00%, 7.00%}

Selected data for Smith:

Gender	Male		
Date of birth	1/1/1965		
Date of hire	1/1/2010		
	2022	2023	2024
Compensation	$90,000	$91,000	$92,000

Smith is reported as an active participant in the 2025 valuation with a funding target of $162,461 as of 1/1/2025. However, the plan actuary is later notified of Smith's disability benefit commencing on 12/31/2024.

$X is the absolute value of the change in the 1/1/2025 funding target that results from Smith's status change from active to disabled participant.

Question 21

In what range is ***$X***?

(A) Less than $100,000

(B) $100,000 but less than $125,000

(C) $125,000 but less than $150,000

(D) $150,000 but less than $175,000

(E) $175,000 or more

Data for Question 22 (3 points)

Selected information as of 1/1/2025:

Disabled participants	30
Active participants	50
Participants receiving benefits	110

Plan disability definition: Disabled within the meaning of Title II of the Social Security Act

Consider the following statements regarding the plan actuary's selection of actuarial assumptions for determining the minimum required contribution for the plan:

I. Pre-retirement mortality must be assumed

II. The plan actuary may use the alternative mortality table for disabled participants as permitted under Revenue Ruling 96-7

III. The plan actuary must use the healthy mortality assumption in the calculation of the 1/1/2025 funding target for all disabled participants

Question 22

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

(A) None

(B) I only

(C) II only

(D) III only

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

Data for Question 23 (2 points)

Type of plan: Multiemployer

Consider the following factors that affect the selection of actuarial assumptions used for funding valuation purposes:

I. Change in vesting schedule

II. Early retirement subsidies

III. Stringent disability eligibility definition

Question 23

Which actuarial assumptions are likely affected by factors I, II, and III, respectively?

(A) Termination rates, retirement rates, disability rates

(B) Termination rates, retirement rates, expected rate of return on assets

(C) Compensation increases, retirement rates, disability rates

(D) Compensation increases, retirement rates, expected rate of return on assets

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

Data for Question 24 (3 points)

Valuation date: 1/1/2025

Normal retirement benefit: 3.00% of final compensation per year of service

Selected information for the 2025 plan year:

Segment rates	{5.00%, 6.00%, 7.00%}
Assumed rate of compensation increases	3.50% per year

Selected data for participant Smith as of 1/1/2025:

Gender	Female
Status	Active
Age	60
Service	10
2024 compensation	$75,750

$X is the funding target for Smith as of 1/1/2025.

Question 24

In what range is ***$X***?

(A) Less than $215,000

(B) $215,000 but less than $240,000

(C) $240,000 but less than $265,000

(D) $265,000 but less than $290,000

(E) $290,000 or more

Data for Question 25 (1 point)

Optional benefit form: Lump sum calculated using applicable interest rate and applicable mortality

Consider the following statement:

> Under the annuity substitution rule, the funding target under IRC section 430 for the optional benefit form described above is determined using the stabilized segment rates to discount the projected annuity payments underlying the lump sum optional benefit form.

Question 25

Is the above statement true or false?

(A) True

(B) False

Data for Question 26 (1 point)

Consider the following statement concerning the deduction limit:

> When determining the deduction limit for a plan covered by the PBGC, the increase in the funding target for a salary-related plan may take into account increases in the 401(a)(17) limitations that are expected to occur in succeeding plan years.

Question 26

Is the above statement true or false?

(A) True

(B) False

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Data for Question 27 (3 points)

Valuation date: 1/1/2025

There was no funding shortfall in 2024.

Segment rates: {5.00%, 6.00%, 7.00%}

Selected valuation results as of 1/1/2025:

Actuarial (market) value of assets	$7,400,000
Funding target	7,500,000
Present value of all benefits expected to accrue or be earned during the year	100,000
Plan-related expenses expected to be paid from the trust, payable at the beginning of the year	24,000
Effective interest rate	6.00%
Prefunding balance	50,000

$X is the **smallest amount that satisfies the minimum funding standard** as of 5/1/2025 for the 2025 plan year.

Question 27

In what range is ***$X***?

(A) Less than $60,000

(B) $60,000 but less than $70,000

(C) $70,000 but less than $80,000

(D) $80,000 but less than $90,000

(E) $90,000 or more

Data for Question 28 (3 points)

Valuation date: 1/1/2025

In the event of a plant shutdown, a plan provides for unreduced early retirement to any participant who has reached age 55 and has at least 10 years of service on the date of the plant closure.

The plan has not been amended since 1/1/2015.

A plant shutdown occurred on 6/1/2023. The AFTAP for the 2023 plan year after taking into account shutdown benefits would be 57.80%.

A second plant shutdown occurred on 12/1/2024. The AFTAP for the 2024 plan year after taking into account shutdown benefits would be 58.20%. The plan sponsor made an IRC section 436 contribution sufficient to cover the increase in the funding target due to the shutdown benefits and to increase the AFTAP to 60.50%.

A third plant shutdown occurred on 6/1/2025. The AFTAP for the 2025 plan year after taking into account shutdown benefits would be 62.75%.

Consider the following statements regarding the actual plant shutdowns:

I. The 2023 shutdown benefits must be included in the 1/1/2025 funding target.

II. The 2024 shutdown benefits must be included in the 1/1/2025 funding target.

III. The 2025 shutdown benefits must be included in the 1/1/2025 target normal cost.

Question 28

Which, if any, of the above statements 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.

Data for Question 29 (1 point)

Valuation date: 1/1/2025

The asset valuation method was changed for the 1/1/2022 actuarial valuation.

Effective 1/1/2025, the plan sponsor would like to change the asset valuation method to fair market value.

Consider the following statement:

> Automatic approval is granted for this asset valuation method change.

Question 29

Is the above statement true or false?

(A) True

(B) False

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 30 (4 points)

Type of plan: Multiemployer

Valuation date: 1/1/2025

Actuarial cost method: Aggregate

Normal retirement benefit: 1.0% times final three-year average compensation times years of service

Selected assumptions:

Valuation interest rate	6.00%
Assumed rate of compensation increases	2.00%

Credit balance as of 12/31/2024: $2,000,000

Market value of assets as of 1/1/2025: $35,000,000

Selected data for all 100 participants:

Gender	Female
Age at hire	24
Age on valuation date	60
2024 compensation	$100,000

$X is the normal cost for 2025.

Question 30

In what range is ***$X***?

(A) Less than $500,000

(B) $500,000 but less than $800,000

(C) $800,000 but less than $1,100,000

(D) $1,100,000 but less than $1,400,000

(E) $1,400,000 or more

Data for Question 31 (2 points)

Consider the following statements regarding the selection of economic assumptions:

I. Inflation is an underlying component that is common to economic assumptions.

II. For a multiemployer plan, the discount rate could be modeled as the combination of two components: inflation and real rate of return.

Question 31

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

(A) None

(B) I only

(C) II only

(D) I and II

Data for Question 32 (5 points)

Valuation date: 1/1/2025

Prefunding balance as of 1/1/2025: $0

Effective interest rate for 2025: 6.50%

A funding shortfall exists as of 1/1/2024.

2024 minimum required contribution: $1,000,000

2025 minimum required contribution: $1,200,000

Contributions for the 2025 plan year:

Date	Contribution
4/15/2025	$250,000
7/15/2025	250,000
10/15/2025	250,000
1/15/2026	150,000
7/15/2026	100,000

No other contributions were made for the 2025 plan year until 9/15/2026.

$X is the **smallest amount that satisfies the minimum funding standard** that can be contributed on 9/15/2026 for the 2025 plan year.

Question 32

In what range is ***$X***?

(A) Less than $273,000

(B) $273,000 but less than $276,000

(C) $276,000 but less than $279,000

(D) $279,000 but less than $282,000

(E) $282,000 or more

Data for Question 33 (4 points)

Valuation date: 1/1/2025

A plan amendment that increases benefits for all years of service is adopted and takes effect on 1/1/2025.

Normal retirement benefit:
Before amendment: 2.00% of final year's compensation per year of service
After amendment: 3.00% of final year's compensation per year of service

Segment rates for 2025: {5.00%, 6.00%, 7.00%}

There are no assumed pre-retirement decrements other than mortality.

Assumed rate of compensation increases: 3.00%

Prefunding balance as of 1/1/2025: $0

Actuarial value of assets as of 1/1/2025: $300,000

Selected data for sole participant Smith:

Gender	Female
Date of birth	1/1/1965
Date of hire	1/1/2015
2024 compensation	$200,000

$X is the increase in the **minimum required contribution** due to the plan amendment.

Question 33

In what range is ***$X***?

(A) Less than $37,100

(B) $37,100 but less than $38,000

(C) $38,000 but less than $38,900

(D) $38,900 but less than $39,800

(E) $39,800 or more

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 34 (3 points)

Plan effective date: 1/1/1980

Valuation date: 1/1/2025

Accrued retirement benefit: 45% of highest three-year average compensation

Segment rates: {5.00%, 6.00%, 7.00%}

There are no assumed pre-retirement decrements other than mortality.

Selected data for active participant Smith:

Gender	Female
Date of birth	1/1/1985
Date of hire	1/1/2020
Date of termination	12/31/2022
Date of rehire	1/1/2024
2020 compensation	$150,000
2021 compensation	175,000
2022 compensation	200,000
2023 compensation	0
2024 compensation	200,000

D_{40}, 7.00% interest rate, female mortality: 66,558

$X is the funding target for Smith as of 1/1/2025.

Question 34

In what range is ***$X***?

(A) Less than $135,000

(B) $135,000 but less than $140,000

(C) $140,000 but less than $145,000

(D) $145,000 but less than $150,000

(E) $150,000 or more

Data for Question 35 (2 points)

Valuation date: 1/1/2025

Type of plan: Statutory hybrid (cash balance)

Pay credit: $3,000 per year

Vesting schedule: Three-year cliff

Interest crediting rate: 5.00% per year

Plan's actuarial equivalence: Plan mortality and 5.0% interest

No plan benefits are currently limited by IRC section 415.

The plan actuary is considering the effect of the following assumptions:

I. An initial turnover decrement of 50% for the first 2 years of employment.

II. Retirement rate assumptions of 25% per year for ages 62, 63, 64, and 65.

III. A compensation increase assumption of 3.00% per year.

Question 35

Which, if any, of the assumptions could affect the minimum required contribution?

(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

Data for Question 36 (4 Points)

Type of plan: Multiemployer

Actuarial cost method: Projected unit credit

A plan amendment that increases benefits for all years of service for active participants is adopted and takes effect on 1/1/2025.

Normal retirement benefit:

Before amendment: 2.00% of final year's compensation per year of service
After amendment: 3.00% of final year's compensation per year of service

Valuation interest rate: 7.00%

Credit balance as of 12/31/2024: $250,000

Selected valuation results as of 1/1/2025 before plan amendment:

Accrued liability for active participants	$2,000,000
Accrued liability for inactive participants	500,000
Normal cost	200,000
Amortization charges	60,000
Amortization credits	25,000

Contributions for the 2025 plan year, made on 6/30/2025: $350,000

Question 36

In what range is the credit balance as of 12/31/2025?

(A) Less than $150,000

(B) $150,000 but less than $180,000

(C) $180,000 but less than $210,000

(D) $210,000 but less than $240,000

(E) $240,000 or more

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 37 (4 points)

Type of plan: Multiemployer

Valuation date: 1/1/2025

Actuarial cost method: Unit credit

Normal retirement benefit: $200 per month per year of service

Early retirement benefit: Accrued benefit reduced by 3.00% for each year that the benefit commencement age precedes age 65

Valuation interest rate: 6.00%

Normal and assumed form of payment: Single life annuity

Pre-retirement decrements other than death: None

Selected data for participant Smith:

Gender	Male
Age at valuation date	62
Years of service at retirement	15
Date of retirement	12/31/2024
Elected form of annuity	5-year certain and life
Conversion factor to elected form	0.97

$X equals the absolute value of the experience gain/loss as of 1/1/2025 due to Smith's retirement and benefit election.

Question 37

In what range is ***$X***?

(A) Less than $28,000

(B) $28,000 but less than $38,000

(C) $38,000 but less than $48,000

(D) $48,000 but less than $58,000

(E) $58,000 or more

Data for Question 38 (3 points)

Type of plan: Multiemployer

Valuation date: 1/1/2025

Actuarial cost method: Unit credit

Valuation interest rate: 6.50%

Funding deficiency as of 12/31/2023: $100,000

Selected valuation results:

	1/1/2024	1/1/2025
Actuarial (market) value of assets	$550,000	$600,000
Actuarial accrued liability	450,000	500,000
Normal cost	40,000	
Net amortization charges	40,000	

Contributions for the 2024 plan year, made on 6/30/2024: $150,000

Consider the following statements:

I. The plan's funded percentage as of 1/1/2025 is greater than 80%.

II. The plan has a funding deficiency as of 12/31/2024.

III. The plan is in critical status as of 1/1/2025.

Question 38

Which, if any, of the above statements 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

Data for Question 39 (2 points)

Type of plan: Multiemployer

Valuation date: 1/1/2025

The plan initially entered critical status on 1/1/2024.

Contributions for 2025 paid during 2025 subject to surcharge (excluding surcharge): $500,000

Contributions for 2025 paid during 2025 that are not subject to surcharge: $95,000

The surcharges for 2025 due on contributions during 2025 were paid during 2025.

$X is the total of contributions for 2025 paid in 2025 including surcharges.

Question 39

In what range is ***$X***?

(A) Less than $550,000

(B) $550,000 but less than $575,000

(C) $575,000 but less than $600,000

(D) $600,000 but less than $625,000

(E) $625,000 or more

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 40 (3 points)

Type of plan: Multiemployer

Valuation date: 1/1/2025

Actuarial cost method: Entry age normal

Valuation interest rate: 6.00%

Credit balance as of 12/31/2024: $400,000

Normal cost as of 1/1/2025: $250,000

Amortization information as of 1/1/2025, before plan amendment:

	Amortization charges/credits
Combined charge base	$450,000
Gain base	100,000

An amendment was adopted and effective 1/1/2025 that provides an additional temporary $100 per month from January 2025 through December 2029 to each retiree as of 1/1/2025.

The plan amendment increases the actuarial accrued liability as of 1/1/2025 by $800,000.

$X is the **smallest amount that satisfies the minimum funding standard** as of 1/1/2025.

Question 40

In what range is ***$X***?

(A) Less than $300,000

(B) $300,000 but less than $350,000

(C) $350,000 but less than $400,000

(D) $400,000 but less than $450,000

(E) $450,000 or more

Data for Question 41 (1 point)

Type of plan: Multiemployer

Valuation date: 1/1/2025

Funding deficiency as of 12/31/2025: $100,000

The funding deficiency was not corrected within the 2025 taxable period.

Consider the following statement:

> An excise tax of $10,000 is owed for failure to correct the accumulated funding deficiency within the 2025 taxable period.

Question 41

Is the above statement true or false?

(A) True

(B) False

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 42 (3 points)

Quarterly installments are required for the 2025 plan year.

Prefunding balance as of 1/1/2025: $40,000

Selected information:

	1/1/2024	1/1/2025
Minimum required contribution	$107,000	$120,000
Effective interest rate	6.00%	6.00%

The plan sponsor timely elected to use funding balances to meet the quarterly installments to the extent possible.

The 2024 minimum funding standard was satisfied before 1/1/2025.

$X is the contribution to be paid on 7/15/2025 required to meet the second quarterly installment.

Question 42

In what range is ***$X***?

(A) Less than $11,400

(B) $11,400 but less than $12,900

(C) $12,900 but less than $14,400

(D) $14,400 but less than $15,900

(E) $15,900 or more

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 43 (2 points)

After the plan sponsor filed for an extension using Form 5558, the due date for the 2025 plan year Form 5500 is 10/15/2026.

The plan actuary has not changed since the plan was adopted.

Consider the following statements:

I. The plan sponsor may elect to add to the plan's prefunding balance for the 2026 plan year on 10/14/2026.

II. The plan sponsor may elect to reduce the plan's prefunding balance for the 2026 plan year on 10/14/2026.

III. The plan sponsor may elect to add to the plan's prefunding balance for the 2026 plan year using a standing election that was signed on 10/14/2026.

Question 43

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

(A) None

(B) I only

(C) II only

(D) III only

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

Data for Question 44 (3 points)

Valuation date: 1/1/2025

Disability eligibility: 5 years of service

Selected valuation assumptions:

Segment rates: {5.00%, 6.00%, 7.00%}
Disabled mortality is the same as healthy mortality
Disabled participants remain disabled permanently
Commencement of disability benefit: Immediate upon disability
Pre-retirement decrements other than death: None

On reviewing the valuation results, the plan's actuary identifies a participant Smith who became disabled on the last day of the prior plan year but had been valued as an active employee with a funding target of $130,000.

Selected information for participant Smith:

Gender	Female
Date of birth	1/1/1965
Date of hire	1/1/2019
Monthly disability benefit	$1,500

$X is the increase in the 1/1/2025 funding target for Smith to reflect that Smith is disabled.

Question 44

In what range is ***$X***?

(A) Less than $85,000

(B) $85,000 but less than $95,000

(C) $95,000 but less than $105,000

(D) $105,000 but less than $115,000

(E) $115,000 or more

Data for Question 45 (2 points)

Type of plan: Multiemployer

Consider the following statements regarding setting a mortality assumption:

I. Regardless of the nature of the covered group, mortality tables for subgroups based on income and job may not be used.

II. Mortality tables based on group annuity contracts are not considered appropriate, even if they are the actuary's best estimate.

III. Different mortality tables may be used for annuitants and non-annuitants.

Question 45

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

(A) None

(B) I only

(C) II only

(D) III only

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

Data for Question 46 (2 points)

Type of plan: Multiemployer

Valuation interest rate: 7.00%

The plan is not in endangered, critical, or critical and declining status for the 2025 plan year, and is not projected to be in critical status within the next five plan years.

The smallest amount that satisfies the minimum funding standard as of 12/31/2025 is $300,000.

The value of contributions made throughout the year, with interest, as of 12/31/2025 for the 2025 plan year: $100,000

Consider the following statement:

> The excise tax for failing to meet the minimum funding requirements for the 2025 plan year is $10,000.

Question 46

Is the above statement true or false?

(A) True

(B) False

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 47 (3 points)

Valuation date: 1/1/2025

Segment rates for 2025: {5.00%, 6.00%, 7.00%}

The plan year is a short plan year that runs from 1/1/2025 to 7/31/2025.

No shortfall amortization bases were established before the 2025 valuation.

Selected information as of 1/1/2025:

Prefunding balance	$0
Actuarial (market) value of assets	1,710,000
Funding target	2,155,000
Present value of all benefits expected to accrue during the short plan year	95,000
Plan-related expenses expected to be paid from the trust during the short plan year	9,000

$X is the **minimum required contribution** as of 1/1/2025.

Question 47

In what range is ***$X***?

(A) Less than $100,000

(B) $100,000 but less than $112,000

(C) $112,000 but less than $124,000

(D) $124,000 but less than $136,000

(E) $136,000 or more

Data for Question 48 (3 points)

Type of plan: Hybrid (cash balance)

Valuation date: 1/1/2025

Segment rates: {5.00%, 6.00%, 7.00%}

Interest crediting rate: 5.00% per year

The plan actuary assumes that 100% of participants elect a single life annuity.

Selected data for participant Smith as of 1/1/2025:

Gender	Male
Age	42
Hypothetical account balance	$95,000

Selected annuity conversion factor using plan's fixed actuarial equivalence: $\ddot{a}_{65}^{(12)} = 12.67$

$X is the funding target for Smith as of 1/1/2025.

Question 48

In what range is ***$X***?

(A) Less than $52,000

(B) $52,000 but less than $61,000

(C) $61,000 but less than $70,000

(D) $70,000 but less than $79,000

(E) $79,000 or more

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 49 (4 points)

Valuation date: 1/1/2025

FTAP as of 1/1/2024: 72%
FTAP as of 1/1/2025: 78%

Selected valuation information:

Effective interest rate	4.50%
Number of participants as of 1/1/2025	250
Funding target as of 1/1/2025	$4,500,000
Target normal cost as of 1/1/2025	0
Liquid assets as of 3/31/2025	1,250,000

Historical disbursements	Recurring annuity payments	Lump sums	Annuity purchases
1/1/2024 to 3/31/2024	$50,000	$0	$0
4/1/2024 to 6/30/2024	100,000	0	140,000
7/1/2024 to 9/30/2024	130,000	160,000	0
10/1/2024 to 12/31/2024	125,000	0	0
1/1/2025 to 3/31/2025	75,000	0	0

Minimum required contribution for the 2024 plan year: $225,000

Minimum required contribution for the 2025 plan year: $250,000

A contribution of $75,000 in liquid assets is made on 2/1/2025.

$X is the liquidity shortfall as of 3/31/2025.

Question 49

In what range is ***$X***?

(A) Less than $125,000

(B) $125,000 but less than $275,000

(C) $275,000 but less than $425,000

(D) $425,000 but less than $575,000

(E) $575,000 or more

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 50 (1 point)

Valuation date: 1/1/2025

Based on information available as of the valuation date, it is determined that there is a de minimis likelihood that future benefits will become payable under the plan due to the occurrence of an unpredictable contingent event.

Consider the following statement:

> The plan actuary may assume that the probability that an unpredictable contingent event will occur is zero when determining the funding target as of 1/1/2025.

Question 50

Is the above statement true or false?

(A) True

(B) False

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Pension

Data for Question 51 (1 point)

Valuation date: 1/1/2025

The plan actuary uses a funding method that anticipates the scheduled future increases in the IRC section 415 maximum dollar limitation for calendar years beginning after the current plan year. The funding method incorporates an assumed 2.00% per year future increase in the section 415 maximum dollar limitation when calculating the funding target and target normal cost.

Consider the following statement:

> The plan actuary is using a reasonable funding method under IRC section 412.

Question 51

Is the above statement true or false?

(A) True

(B) False

Data for Question 52 (2 points)

Valuation date: 1/1/2025

Minimum required contribution: $125,000

The **smallest amount that satisfies the minimum funding standard** as of 9/15/2026: $138,083

No contributions were made for the 2025 plan year.

Consider the following statements with respect to excise taxes owed due to failure to meet minimum funding standards:

I. There is an initial excise tax due of $13,808 due to failure to meet minimum funding standards.

II. There is an initial excise tax due of $6,250 due to failure to meet minimum funding standards.

III. The Secretary of the Treasury may waive the initial excise tax on unpaid minimum required contributions in appropriate cases.

Question 52

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

(A) None

(B) I only

(C) II only

(D) III only

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

Data for Question 53 (4 points)

Type of plan: Multiemployer

Plan effective date: 1/1/2013

Valuation date: 1/1/2025

Actuarial cost method: Entry age normal

Normal retirement age: 62

Normal retirement benefit: 35% of final year's compensation

Selected valuation information:

Assumed retirement age	62
Valuation interest rate	7.00%
Assumed annual rate of compensation increases	3.00%

Selected data for active participant Smith:

Gender	Female
Age	53
Date of hire	1/1/2018
2024 compensation	$50,000

$X is Smith's accrued liability as of 1/1/2025.

Question 53

In what range is ***$X***?

(A) Less than $55,000

(B) $55,000 but less than $66,000

(C) $66,000 but less than $77,000

(D) $77,000 but less than $88,000

(E) $88,000 or more

Data for Question 54 (3 points)

Valuation date: 1/1/2025

The plan has always had more than 500 participants.

The plan has been at-risk every year for the past 5 years.

Selected valuation information as of 1/1/2025:

Funding target without regard to at-risk assumptions	$5,000,000
At-risk funding target without regard to load	6,000,000
Target normal cost without regard to at-risk assumptions	250,000
At-risk target normal cost without regard to load	350,000
Number of participants	750

$X is the sum of the at-risk funding target and at-risk target normal cost.

Question 54

In what range is ***$X***?

(A) Less than $6,200,000

(B) $6,200,000 but less than $6,500,000

(C) $6,500,000 but less than $6,800,000

(D) $6,800,000 but less than $7,100,000

(E) $7,100,000 or more

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 55 (1 point)

The plan provides a post-retirement lump sum death benefit of $1,000.

Consider the following statement:

The funding target attributable to this benefit is zero.

Question 55

Is the above statement true or false?

(A) True

(B) False

Exam EA-2 (Segment F) Fall 2024
Pension

Data for Question 56 (4 points)

Valuation date: 1/1/2025

The plan's 2024 AFTAP was timely certified to be 85.00%.

2024 effective interest rate: 5.50%

Selected information as of 1/1/2025:

Prefunding balance	$800,000
Actuarial (market) value of assets before any receivable contributions	1,500,000
Funding target	800,000

Sole contribution for the 2024 plan year, made on 3/15/2025: $50,000

The 2025 AFTAP was certified after 4/1/2025.

The plan allows for lump sum benefit payments.

$X is the deemed reduction in the prefunding balance to avoid benefit restrictions under IRC section 436.

Question 56

In what range is **$X**?

(A) Less than $15,000

(B) $15,000 but less than $27,000

(C) $27,000 but less than $39,000

(D) $39,000 but less than $51,000

(E) $51,000 or more

Data for Question 57 (2 points)

Type of plan: Multiemployer

Consider the following statements with respect to the plan's funding standard account:

I. Amounts contributed by employers to the plan are credits to the funding standard account.

II. The amount of any waived funding deficiency under IRC section 412(c)(3) for the plan year is a credit to the funding standard account.

III. The net experience loss amortization is a credit to the funding standard account.

Question 57

Which, if any, of the above statements 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.

Data for Question 58 (1 point)

Type of plan: Multiemployer

On 1/1/2021, the funding method was changed to entry age normal.

Consider the following statement:

> Automatic approval is granted for a change in funding method to the unit credit funding method on 1/1/2025.

Question 58

Is the above statement true or false?

(A) True

(B) False

****END OF EXAMINATION****