

Quantitative Methods

Employee Compensati...mployment & Share Based



Jason Johnson, CFA, is a principal of a large private equity firm in New York. One of the associates in his firm has identified a potential investment opportunity for the firm: Gasline, Inc. is a major producer of carbon steel pipe used in the transportation of natural gas in the Southwestern United States.

Of particular concern to Johnson is Gasline's numerous, complicated transactions related to the company's various stock-based compensation plans and its defined benefit pension plan.

For example, the CEO of Gasline was awarded a stock option package at the beginning of 2013.

4. (B) in compliance because a Monte Carlo simulation is an acceptable method of valuing options in the absence of a market-based instrument.

Explanation

Under SFAS No. 123(R), firms are required to use the fair value method of valuing stock option plans. In the absence of a market-based instrument, firms may select and use an option-pricing model such as the Black-Scholes, the binomial model or Monte Carlo.

(Module 9.7, LOS 9.h)

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5. (A) plan assets will increase.

Explanation

Increasing the discount rate would reduce PBO and not plan assets, improving the funded status. Reported pension expense would also decrease in most cases.

(Module 9.7, LOS 9.h)

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6. (B) pension expense reported in P&L would decrease.

Explanation

Increasing the expected return on plan assets would not affect PBO or plan assets and hence would not affect the funded status. It would however reduce reported pension expense. Total periodic pension cost is based on actual return on plan assets and hence would not be affected.

(Module 9.7, LOS 9.h)

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7. (B) total periodic pension cost would decrease.

Explanation

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Changes in actuarial assumptions do not affect plan assets. The funded status would change only due to changes in PBO due to change in actuarial assumptions. Total periodic pension cost would decrease due to actuarial gains. Actuarial gains would be considered remeasurement gains and would be reflected OCI (and not income statement). Under US GAAP if the gains meet the requirements of amortization under corridor approach, the future reported pension expense would be lower.

(Module 9.7, LOS 9.h) **Related Material** SchweserNotes - Book 2

8. (B) If the PBO and the plan assets are the same, then nothing needs to be reported on the balance sheet.

Explanation

Neither the PBO nor the plan assets are separately reported on the balance sheet. The funded status is the difference in the PBO and the plan assets. If the PBO exceeds the plan assets, the difference is reported as a liability. If the plan assets exceed the PBO, the difference is reported as an asset. If the amounts are the same, then neither a liability nor asset needs to be reported.

Plan amendments (i.e. additional benefits provided that increase the amount of the employer's obligation to plan participants) generally result in an *increase* of the PBO.

The fair value of plan assets at the beginning of the period is increased by the *actual* return on plan assets as well as any employer contributions. It is reduced by the amount of benefits paid.

(Module 9.2, LOS 9.b)

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9. (A) Increasing the discount rate.

Explanation

Increasing discount rate leads to lower present values and reduces reported pension liability in the balance sheet and also reduces pension expense by reducing the service cost component. Increasing expected return on plan assets does reduce pension expense but does not affect reported assets or liabilities. Increasing the growth rate in compensation expense increases service cost as well as reported pension liability.

(Module 9.5, LOS 9.d)

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Jason Moore, CFA, is a credit analyst for Everest Bank in New York in the firm's investment banking division. An existing customer of Everest, Longhorn Partners, which is based in Texas, has approached the bank for a \$45 million loan to be used to acquire a smaller competitor. Moore has been appointed head of the credit team that will review Longhorn's current business with Everest as well as Longhorn's current operations, in order to assess Longhorn's request.

Overall, Longhorn has achieved consistent profitability over the last decade. The company is appropriately leveraged and appears to be well-run by its senior management team. However, there are a couple of items in the company's financial statements that Moore believes may warrant further analysis. He specifically wants to adjust Longhorn's reported operating profit for comparative analysis with other companies who may not report their entire pension expense as an operating expense.

For many years, Longhorn has offered to its fulltime employees a traditional defined-benefit pension plan: eligible employees are promised an annual pension payment of 3% per year of service times their annual salary at retirement. Selected information regarding the pension plan from Longhorn's most recent financial statement is as follows:

Pension Benefit Obligation (PBO) (ending)	\$85,475,000
Accumulated Benefit Obligation (ABO) (ending)	65,250,000
Fair value of plan assets (ending)	71,365,000
Fair value of plan assets (beginning)	66,360,000
Operating income	17,185,000
Interest expenses	1,285,000
Pension Expense	5,456,000
Contributions	7,200,000
Service cost	4,114,000
Interest cost	5,342,000,
Discount rate	6.25%

Additionally, Longhron has a share = based compensation plan for its senior executives.

10. (A) a liability of \$14,110,000.

Explanation

Pension plans are underfunded when the PBO exceeds the fair market value of the plan assets. In this case, the PBO exceeds the plan assets by 14,110,000 (= 85,475,000 - 71,365,000) and hence a liability will be reported.

(Module 9.2, LOS 9.b)

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An increase in the discount rate will result in lower service cost. Using a lower rate of compensation growth will yield lower future pension benefits owed, and thus a lower service cost. The expected return has no impact on service cost.

(Module 9.5, LOS 9.d)

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A higher than expected dividend yield will decrease the estimated fair value. 15. (C)

Explanation

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Dividends paid out reduce the value of the underlying shares and therefore, reduce the value of the option.

There is no preference of a specific option-pricing model in either IFRS or U.S. GAAP. Acceptable models include the Black-Scholes model or the binomial model.

A lower risk-free rate will usually decrease the estimated fair value of the option (refer to the Study Session on derivatives). The sensitivity factor is "Rho" and for call options, there is a positive relationship between the risk-free rate and the estimated fair value of the option.

(Module 9.7, LOS 9.h)

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16.		Discount rate	Expected rate of return
	(A)	Decrease	No effect
		Explanation	

The PBO will decrease because a higher discount rate will cause the present value of the future obligations to decline. There will be no effect from changing the expected rate of return because expected return relates to the pension expense, not to the size of the obligation.

(Module 9.5, LOS 9.d) randa Enterprise

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There is a source of borrowing of \$100,000. 17. (B)

Explanation

The total periodic pension cost represents the true cost of the pension. The reported pension expense is irrelevant in this case.

Since the true pension expense (\$3.1 million) exceeds the contributions (\$3.0 million), the \$100,000 difference can be viewed as a source of borrowing. Alternatively, if the firm's contributions exceed the true pension expense, the difference can be viewed as a reduction in the overall pension obligation, similar to an excess principal payment on a loan.

(Module 9.6, LOS 9.f)

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18. (A) A high discount rate.

Explanation

The assumption of a high discount rate will result in a lower pension liability and almost always a lower pension expense. The more aggressive the actuarial assumptions for a pension plan are, the lower the quality of earnings for the firm. (Module 9.5, LOS 9.d)

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19. (B) Projected benefit obligation (PBO).

Explanation

Total periodic pension cost is a net (smaller) amount and therefore, is generally quite sensitive to relatively minor changes in actuarial assumptions.

Changing an assumption may have a small effect on the projected benefit obligation (PBO) but may have a much larger effect on the funded status (which is a net pension amount) which is the balance sheet asset or liability.

(Module 9.5, LOS 9.d)

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20. (A) The decrease in the long-term rate of return will have no impact on the defined benefit obligation and will increase reported pension expense.

The decrease in the expected long-term rate of return on plan assets from 8% to 6% will have no effect on the defined benefit obligation (after all, it is an obligation and not an asset). The reduction will, however, increase reported pension expense for current and future periods because the expected return is subtracted while computing pension expense.

The reduction in the discount rate from 10% to 8% will increase (not decrease) the defined benefit obligation and will also increase reported pension expense because it will increase the current service cost. Additionally, the actuarial gains and losses resulting from this change (the difference between the defined benefit obligation after the increase and the defined benefit obligation before the increase) will be amortized into pension expense over time using the corridor approach. Amortization will start in the period after the change is made.

The decrease in the expected long-term rate of return on its plan assets from 8% to 6% will increase, not decrease, reported pension expense. Expected return reduces pension expense.

(Module 9.5, LOS 9.d)

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21. (A) Among the different types of pension plans, accounting for a pay-related defined benefit plan is the most complicated because of the required actuarial assumptions.

Explanation

Three actuarial assumptions (discount rate, expected increase in employee compensation and the expected return on plan assets) must be estimated to project the value of the corporation's pension liability today. Subtle changes to any of the three assumptions can drastically change the estimated liability.

(Module 9.1, LOS 9.a)

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22.		Change	Result
	(A)	decreased rate of compensation growth	decreased service cost
		Explanation The rate of compensation growth is the expension employee compensation. If the rate of growth is improved due to a decrease in service cost. A de lower pension expense. (Module 9.5, LOS 9.d) Related Material SchweserNotes - Book 2	ected average annual increase in lowered, reported results will be crease in service cost will result in
23.	(B)	 There is a reclassification of \$189,000 from operating cash flow to financing cash flow. Explanation The total periodic pension cost = service cost + interest cost - actual return on plan assets = \$450,000 + \$85,000 - \$50,000 = \$485,000. Since the differences in cash flow and economic pension expense are considered material, for analysis purposes we should consider reclassifying the difference from operating activities to financing activities in the cash flow statement. The employer's contribution was only \$215,000. Since the total periodic pension cost exceeds the cash flow, the difference, net of tax, is treated as a borrowing in the cash flow statement for analytical purposes. Given a tax rate of 30%, \$189,000 is reclassified from operating cash flow to financing cash flow [(\$485,000 total periodic pension cost - \$215,000 employer contribution) ((1 -30% tax rate)]. (Module 9.6, LOS 9.f) Related Material SchweserNotes - Book 2	

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24. (A) In a share based compensation plan, expense is not recognized, unless the exercise price is set below the market price.

Explanation

Share based compensation needs to be recognized at fair value under both U.S.GAAP and IFRS. Intrinsic value does not matter. However, the expense does not require a cash outlay and serves to align the interest of employees and stockholders.

(Module 9.7, LOS 9.g)

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25. (B) Once the options are in-the-money, compensation expense is recognized on the income statement.

Explanation

Compensation expense is based on the fair value of the option on the grant date based on the number of options that are expected to vest. The vesting date is the first date the employee can actually exercise the option. The compensation is allocated in the income statement over the service period (which is the time between the grant date and the vesting date).

For any compensation expense recognized, the offset is an expense in paid-in capital, which is a stockholders' equity account.

(Module 9.7, LOS 9.h)

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Paul Roberts, CPA, is a partner in Roberts & Smith, an accounting firm that is located in Chicago. The firm has recently been retained by Midwest Manufacturing, a major producer of heavy machinery and tractor parts in the U.S. Midwest has been in operation since 1965, and currently has approximately 700 full-time employees. The company had its initial public offering in 1986. The company has hired Roberts's firm to ensure that the accounting for Midwest's employee pension plan is fully in compliance U.S. GAAP standards.

Selected year-end pension plan information for Midwest Manufacturing

	2006	2007
РВО	\$21 million	\$23 million
Discount Rate	6.0%	7.5%
Rate of Compensation Increase	4.0%	4.0%
Benefits paid	\$0.8m	\$1m
Interest cost		\$1.6m
Service cost		\$3m

Roberts will educate Midwest's accounting department on pension plan accounting that would be relevant to their situation.



26. (A) actual return on assets, employer contributions, and benefits paid.

Explanation

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Companies are required to disclose a reconciliation of the beginning and ending balances of the fair value of plan assets, which can be calculated as follows: Fair value of plan assets at the beginning of the year

- + Actual return on assets
- + Employer contributions
- Benefits paid
- = Fair value of plan assets at the end of the year

(Module 9.6, LOS 9.e)

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27. (C) The funded status of the plan.

Explanation

The current standard requires companies to report the funded status of the plan, which is the difference between the PBO and the fair value of plan assets.

(Module 9.6, LOS 9.e)

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28. (B) -\$2.0 million.

Explanation

The funded status is the difference between the PBO and the fair value of plan assets as of the reporting date. For Midwest's plan, \$21,000,000 - 23,000,000 = -\$2,000,000. PBO figure is already given – and it includes all unrecognized items (and hence need not be adjusted).

(Module 9.6, LOS 9.e) **Related Material**

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29. (A) The balance sheet will now reflect the true economic position of the pension plan, but the income statement will not necessarily reflect a true measure of economic pension expense.

Explanation

Because deferred and unrecognized items are required to be reported on the balance sheet but not the income statement, the balance sheet will reflect the true economic position of the pension plan, but the income statement will not necessarily reflect a true measure of economic pension expense. U.S.GAAP and IFRS still differ with respect to reporting pension expense.

(Module 9.6, LOS 9.e)

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30. (C) be computed the same under IFRS and US GAAP.

Explanation

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TPPC is the true (i.e., economic) cost of the pension plan; it does not change depending on the accounting system chosen. TPPC uses actual return on plan assets: it is not impacted by our expectations. TPPC is not reported in the income statement.

(Module 9.4, LOS 9.c)

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31. (A) Both are incorrect.

Explanation

The grant date is the date an award is approved by the board of directors or compensation committee. When two or more performance conditions must be satisfied, the requisite service period does not end until all conditions are met.

(Module 9.7, LOS 9.g)

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32. (C) netted against each other, and only the net asset or liability amount is reported on the company's balance sheet.

Explanation

Under current U.S. GAAP, companies are required to report only the net asset or liability amount. They cannot show assets and liabilities separately. Although some smoothing details are still disclosed in the footnotes, all, major components of pension assets and liabilities are now required to be shown on the balance sheet.

(Module 9.6, LOS 9.e)

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33. (C) Decrease the rate of compensation growth.

Explanation

A decrease in the rate of compensation growth will lower future pension payment and in turn, lower the PBO.

(Module 9.5, LOS 9.d)

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34. **(B)** \$22,500,000.00.

Explanation

Total periodic pension cost = service cost + interest cost - actual return on plan assets + plan amendments

Therefore, 27,000,000 + 3,000,000 - 7,500,000 = 22,500,000

There are no other actuarial assumptions affecting PBO as evidenced by reconciliation of PBO:

Beginning PBO	65
(+) Service cost	27
(+) Interest cost	3
(–) Benefits paid	(5)
(=) Ending PBO	90

(Module 9.3, LOS 9.c)

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35. (B) actuarial present value of all future pension benefits earned to date based on expected future salary increases.

Explanation

The projected benefit obligation (PBO) is defined as the actuarial present value of all future pension benefits earned to date based on expected future salary increases.

(Module 9.2, LOS 9.b)

Related Material

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36. (B) to be expensed as part of cost of goods sold when the inventory is sold.

Explanation

Pension costs included in the cost of production of goods (e.g., labor costs included in the value of work-in-process or finished goods) may be capitalized as part of valuation of ending inventory. When this inventory is eventually sold, such costs are expensed as a component of cost of goods sold.

(Module 9.4, LOS 9.c)

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<u>CFA®</u> 37. (B) A defined benefit plan.

Explanation

A company with a defined benefit plan will fund a portfolio structured to fulfill future pension obligations. The difference between the current value of the assets and the projected future liability is shown as a net amount on the balance sheet.

(Module 9.1, LOS 9.a)

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Jon Horton, CFA, is the Chief Financial Officer (CFO) for Springtown Corporation, a manufacturer of windows for residential and commercial applications. As part of an ongoing diversification strategy, Springtown Corp. has recently entered into a preliminary agreement to purchase all of the assets of Prime Doors, a manufacturer and distributor of doors to the same residential and commercial market in which Springtown sells its windows. Horton is head of the due diligence team that will fully evaluate Prime Doors' financial statements prior to the proposed acquisition.

Prime Doors has been in operation for thirty years, and currently has approximately 800 employees at two operating facilities. Horton observes in the notes to the financial statements that Prime Doors has a defined benefit pension plan, for which all employees are eligible. Employees are vested at the rate of 20% per year of employment, and are fully vested upon completion of five years of employment. Springtown does not offer a pension plan to its employees, but encourages employees to contribute to Individual Retirement Accounts (IRAs) and offers a 401(k) program.

Horton wants to fully evaluate the financial implications of Springtown's assumption of Prime Doors' pension assets and the associated future liabilities and expenses. Like most companies, the pension plan for Prime Doors' employees is not fully funded, but Horton wants to review all assumptions used by Prime Doors' accountants in the valuation of the plan's current liabilities. The most current information regarding the pension plans is as follows:

Select Pension Plan Information for Prime Doors (as of 12/31/05)	
Projected benefit obligation (PBO)	\$15,500,000
Accumulated benefit obligation (ABO)	\$13,750,000
Market value of plan assets	\$11,875,000

Horton notices a paragraph in the pension plan footnotes that the original pension plan was amended last year, effectively increasing the level of benefits to be paid to employees with more than ten years of service. However, he is not able to detect what effect, if any, this change in projected benefits has had on Prime Doors' financial statements or is expected to have in the future.

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Horton is aware that a commonly used method can be used to adjust the income statement and provide a better measure of Prime Doors' economic pension cost than reported pension expense. He is not quite sure which components of the financial statements are utilized to derive an adjusted pension expense, but intends to investigate what analysis he can perform to gain more insight into the company's position with regards to its pension plan.

38.

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Required disclosure		Not required to be Disclosed	
(A)	Rate of compensation growth	Expected length of employment	

Explanation

A company must disclose the discount rate, the expected return on plan assets, and the rate of compensation growth. The expected length of employment is not a required disclosure.

(Module 9.2, LOS 9.b)

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39. (C) Only one will decrease. Explanation

The use of a higher discount rate will decrease a company's PBO. The expected rate of return has no impact on pension obligations or the fair value of plan assets.

(Module 9.2, LOS 9.b)

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40. (C) record \$2,125,000 as additional pension liability on its balance sheet.

Explanation

According to current U.S. accounting standards, the funded status must be reported on the balance sheet. The plan is underfunded by 3,625,000 (11,875,000 Plan assets – 15,500,000 PBO). Since Prime Doors is reporting a liability of 1,500,000, an additional liability of 2,125,000 (3,625,000 required liability – 1,500,000 reported liability) must be reported.

(Module 9.2, LOS 9.b)

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41. (A) an unrecognized prior service cost that is amortized over the expected remaining service life of the affected employees.

Explanation

The amendment affects the funded status on the balance sheet immediately. In the income statement, the amendment is amortized as a component of pension expense over the remaining service life of the affected employees.

(Module 9.2, LOS 9.b)

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42. (B) Stock appreciation rights never have any dilution effect on the existing shareholders.

Explanation

Stock appreciation rights do not cause dilution to the existing shareholders since no shares are actually issued.

Performance stock is a type of stock grant. It is contingent on meeting performance goals such as accounting earnings or other financial reporting metrics like return on assets or return on equity. Unfortunately, tying performance to accounting earnings and other metrics may result in manipulation by the employee. With restricted stock, the transferred stock cannot be sold by the employee until vesting has occurred.

Phantom stock is similar to stock appreciation rights except the payoff is based on the performance of hypothetical stock instead of the firm's actual shares.

(Module 9.7, LOS 9.h)

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43. (C) The net pension liability will increase immediately by the projected increase in pension benefits due to employees.

Explanation

A plan amendment will result in an immediate increase in the PBO. Under current U.S accounting standards, an increase in PBP will result in an increase in the pension liability decrease in funded status)

(Module 9.3, LOS 9.c)

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44. (A) Under IFRS, the funded status (difference in the PBO and the plan assets) is reported on the balance sheet.

Explanation

The calculation of reported pension expense differs between U.S. GAAP and IFRS. Under U.S. GAAP and under IFRS, the net pension asset or liability reported on the balance sheet is equal to the funded status, without adjustment for unrecognized items.

Since balance sheet asset/liability under U.S. GAAP and IFRS reflects funded status, no reconciliation is necessary in the footnotes.

(Module 9.6, LOS 9.e)

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45. (C) Compensation growth rate assumption is a change in actuarial assumption that will reduce the defined benefit obligation and future pension expense. Explanation

The change in the compensation growth rate assumption is a change in actuarial assumption that will reduce the defined benefit obligation and future pension expense, as the effect is amortized into pension expense over time. In this question, the change is a reduction in both the defined benefit obligation and pension expense.

The change in the contribution percentage is not a change in actuarial assumption but a plan amendment (which would be reflected as negative past service cost and either amortized under US GAAP or recognized in full under IFRS).

Amortization of negative past service cost (applicable only under US GAAP) would decrease, not increase, pension expense over the remaining service lives of its employees.

(Module 9.5, LOS 9.d)

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46. (A) It is equal to the change in the funded status for the period.

Explanation

Total periodic pension cost (the true or economic pension expense) is equal to the change in the funded status for the period excluding the firm's contributions.

Total periodic pension cost is calculated by eliminating the smoothed amounts from reported pension expense and including the actual return on assets. The result is a more volatile measure of pension expense.

(Module 9.3, LOS 9.c)

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47. (C) Service cost + interest cost + plan amendments – actual on plan assets. Explanation

The total periodic pension cost, (absent any information on changes in actuarial assumptions) is calculated without reflecting the amortization of unrecognized items and other smoothing mechanisms included in reported pension expense, and addition uses the plan's actual return on assets, rather than the plan's expected return.

(Module 9.3, LOS 9.c)

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