

## **Vesting (IRC section 411(a))**

- Defined benefit plans must provide a vesting schedule at least as good (in every year) as one of two schedules.
  - 5-year cliff vesting (100% after 5 years of service). (Note that prior to 1999, multiemployer plans were allowed to use a 10-year cliff schedule. This is no longer the case, and they must satisfy the same rules as single employer plans.)
  - 3 to 7 year vesting (20% after 3 years, increasing 20% per year to a maximum of 100% after 7 years of service). This is also referred to as the 7-year graded vesting schedule.
- Top heavy plans must provide a vesting schedule at least as good (in every year) as one of two schedules (IRC section 416(b)).
  - 3-year cliff vesting (100% after 3 years of service).
  - 2 to 6 year vesting (20% after 2 years, increasing 20% per year to a maximum of 100% after 6 years of service). This is also referred to as the 6-year graded vesting schedule.
- Beginning in 2007, all defined contribution plans must provide a vesting schedule under IRC section 411(a)(2)(B) as good as the top heavy minimum vesting schedules even if the plan is not top heavy.
- Plans requiring more than one year of service for eligibility must provide 100% vesting.
- Cash balance plans (and other plans with a hypothetical account balance) must provide 100% vesting after 3 years of service (IRC section 411(a)(13)(B)).
- All participants must be fully vested upon attaining normal retirement age. There is no requirement for full vesting upon reaching a plan's early retirement age, or upon death or disability.

## Question 7

Plan effective date: 1/1/1990

Normal retirement benefit: \$60 per month per year of service

Pre-retirement death benefit: Present value of accrued benefits

Actuarial equivalence assumptions:

Interest rate: 5% per year

Pre-retirement decrements: None

Post-retirement life annuity values:  $\ddot{a}_{65}^{(12)} = 9.53$     $\ddot{a}_{66}^{(12)} = 9.19$     $\ddot{a}_{67}^{(12)} = 8.71$

Data for participants Smith and Brown:

	<u>Smith</u>	<u>Brown</u>
Date of birth:	1/1/1941	1/1/1942
Date of hire:	1/1/1997	1/1/1988
Date of retirement:	1/1/2008	1/1/2008

The plan has not provided either Smith or Brown with a suspension of benefits notice.

What is the difference of the absolute value of the smallest monthly accrued benefit payable to Smith and the smallest monthly accrued benefit payable to Brown as of 1/1/2008?

## Solution to question 7

Smith reached the normal retirement age of 65 (this is the normal retirement age based upon the general conditions of the exam since no other definition of normal retirement age is provided in the question) on 1/1/2006. Smith's monthly accrued benefit as of 1/1/2006 was:

$$AB_{1/1/2006} = \$60 \times 9 \text{ years of service} = \$540$$

Smith postponed retirement by two years, to age 67. Since the benefit formula is based upon all years of service, Smith must continue to accrue a benefit through the actual retirement age. In order to determine the smallest possible benefit due to Smith upon actual retirement at age 67 on 1/1/2008, it is first necessary to determine the benefit that Smith would have received at age 66 had Smith retired at that time.

The monthly accrued benefit based upon the benefit formula as of 1/1/2007 was:

$$AB_{1/1/2007} = \$60 \times 10 \text{ years of service} = \$600$$

Smith cannot receive less than the actuarial equivalent of the normal retirement benefit of \$540. Using the plan's actuarial equivalence assumptions (the increase from age 65 to age 66 is based upon interest only since there is no forfeiture of benefit upon death), the normal retirement benefit of \$540 is increased to age 66:

$$\$540 \times \ddot{a}_{65}^{(12)} \times 1.05 \div \ddot{a}_{66}^{(12)} = \$540 \times 9.53 \times 1.05 \div 9.19 = \$588$$

Since the plan's accrued benefit of \$600 is greater than the actuarial equivalent benefit of \$588, Smith would have received \$600 if retirement had occurred on 1/1/2007.

This process must be repeated in order to bring the accrued benefit forward from age 66 to age 67.

The monthly accrued benefit based upon the benefit formula as of 1/1/2008 was:

$$AB_{1/1/2008} = \$60 \times 11 \text{ years of service} = \$660$$

Using the plan's actuarial equivalence assumptions, the benefit that would have been payable at age 66 of \$600 is increased to age 67:

$$\$600 \times \ddot{a}_{66}^{(12)} \times 1.05 \div \ddot{a}_{67}^{(12)} = \$600 \times 9.19 \times 1.05 \div 8.71 = \$665$$

Since the plan's accrued benefit of \$660 is smaller than the actuarial equivalent benefit of \$665, Smith must receive \$665 on 1/1/2008.

Brown reached the normal retirement age of 65 on 1/1/2007. Brown's monthly accrued benefit as of 1/1/2007 was:

$$AB_{1/1/2007} = \$60 \times 19 \text{ years of service} = \$1,140$$

Brown's monthly accrued benefit as of 1/1/2008 was:

$$AB_{1/1/2008} = \$60 \times 20 \text{ years of service} = \$1,200$$

Brown cannot receive less than the actuarial equivalent of the normal retirement benefit of \$1,140. Using the plan's actuarial equivalence assumptions, the normal retirement benefit of \$1,140 is increased to age 66:

$$\$1,140 \times \ddot{a}_{65}^{(12)} \times 1.05 \div \ddot{a}_{66}^{(12)} = \$1,140 \times 9.53 \times 1.05 \div 9.19 = \$1,241$$

Since the plan's accrued benefit of \$1,200 is less than the actuarial equivalent benefit of \$1,241, the plan must pay Brown \$1,241.

Note that if the plan had provided Brown with a suspension of benefits notice, then the smallest benefit payable to Brown would have been \$1,200, as the plan would not be liable for the actuarially increased normal retirement benefit.

Further note that in the case of both Smith and Brown, there is no need to combine the actuarial increase in the normal retirement benefit with the increase in the benefit accrual for the final year of service because IRC section 411(b)(1)(H)(iii)(II) allows the increase in accrual to be offset by the actuarial increase in the normal retirement benefit.

The difference between the accrued benefits for Smith and Brown is:

$$\$1,241 - \$665 = \$576$$

### Question 39

Employer W sponsors two defined benefit plans. Plan A covers salaried employees and Plan B covers hourly employees.

Eligibility requirements for each plan: None

Number of employees:

	<u>HCE</u>	<u>NHCE</u>
Salaried	26	101
Hourly	12	339

Average of the benefit percentages for plan participants:

	<u>HCE</u>	<u>NHCE</u>
Salaried	5.122%	4.689%
Hourly	2.462%	2.923%

X = NHCE concentration percentage

Y = Average benefit percentage

What is X + Y?

### **Solution to question 39**

For purposes of both the NHCE concentration percentage and the average benefit percentage, all plan of the employer must be aggregated. Since there are no eligibility requirements for each plan, all employees are non-excludable for the aggregated plans.

The NHCE concentration percentage is the ratio of the non-excludable NHCEs to the total of all non-excludable employees. This is:

$$X = \text{NHCE concentration percentage} = \frac{101 + 339}{101 + 339 + 26 + 12} = 92.05\%$$

The average benefit percentage is equal to the ratio of the average of the NHCE benefit percentages to the average of the HCE benefit percentages. This is:

$$Y = \text{average benefit percentage} = \frac{[(101 \times 4.689\%) + (339 \times 2.923\%)] / 440}{[(26 \times 5.122\%) + (12 \times 2.462\%)] / 38} = 77.73\%$$

$$X + Y = 92.05\% + 77.73\% = 169.78\%$$