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## HOMWORK ON SHARE-BASED PAYMENT

### **Problem 1 – Share option with service condition and non-market condition**

On Jan. 2, 2017, Pandora Co. granted 50 share options each to 400 employees, conditional upon the employees' remaining in the company's employ during the vesting period. The shares will vest at the end of 2017 if the company's earnings increased by more than 15%; or at the end of 2018 if the earnings increased by an average of 12% over the two-year period; or at the end of 2019 if the earnings increased by an average of 10% over the three-year period. The options have a fair value of P25 on Jan. 2, 2017, which is equal to the share price on the grant date.

At the end of 2017, earnings had increased by 13% and 20 employees have left and the company expects that earnings will continue to increase at a similar rate in 2018 and expects to vest in 2018. The company also expects, on the basis of weighted average of probability, that a further 20 employees will leave during 2018.

At the end of 2018, earnings increased by only 9% and therefore shares do not vest at the end of 2018. Also, 15 employees left the company in 2018 and the company further expects that 10 employees will leave the company in 2019. The company expects that earnings will continue to increase at similar rate.

At the end of 2019, earning increased by 9% and 5 employees have left the company in 2019.

Determine Pandora's remuneration expense recognized in 2017, 2018 and 2019.

### **Problem 2 – Share option with service condition and non-market condition**

On Jan. 1, 2017, Aeolus Corp. grants share options to each of its 50 employees. The share option will vest on Dec. 31, 2019, provided that the employees remain in the company's employ and provided that volume of sales of a particular product increases by an average of between 5% and 10% per year, the employees will receive 100 share options. If the volume of sales increases between 10% and 15% each year, the employees will receive 200 share options. If the volume of sales increases by an average of 15% or more, each employee will receive 300 share options.

On Jan. 1, 2017, Aeolus estimated that the share options have a fair value of P30 per option and expects that the volume of sales of the product will increase by an average of between 10% and 15%. The company expects that no employees are leaving within the next 3 years.

At the end of 2017, sales increased by 12% and the company expect that this rate of increase will continue in the next two years. At the end of 2018, product sales had increased by 18% and the company expects that sales will increase by an average of 15% or more over the three-year period. At the end of 2019, sales had increased by an average of 15% over the three-year period.

Determine Aeolus's remuneration expense recognized in 2017, 2018 and 2019.

**Problem 3 – Share option with market condition**

On Jan. 1, 2015, Ariadne, Inc. granted 5,000 share options with a ten-year life to each of its 10 executives. The share option will vest and become exercisable immediately if and when the company's share price increases from P50 to P70 and provided that the executives remain in service until the share price target is achieved.

The company applies a binomial option model, which takes into account the possibility that the share price will be achieved during the ten-year life of the options and the possibility that the target share price will not be achieved. The company estimates that the fair value of the options at grant date is P25 per option. From the option-pricing model, the company determines that the mode of the distribution of possible vesting dates is five years. The most likely outcome of the market condition is that the share price target will be achieved at the end of 2019. Therefore, Ariadne estimates that the expected vesting period is five years. Ariadne also estimates that 2 executives will have left by the end of 2019 and therefore expects that 40,000 share options will vest at the end of 2019.

Throughout 2015 to 2018, Ariadne continues to estimate that a total of 2 executives will leave by the end of 2019. However, in total, three executives had left one each in 2017, 2018 and 2019, when the target was achieved.

Determine Ariadne's remuneration expense from 2015 to 2019.

**Problem 4 – Share option with no FV available**

On Jan. 1, 2014, Lynx Co. granted 30,000 share options to its employees. The share options will vest at the end of three years provided the employees remain in service until then.

The option price is P60 and the entity's share price is also P60 at the date of grant. The par value of the share is P50. At the date of the grant, the entity concluded that the fair value of the share options cannot be estimated reliably.

The share options have a life of 6 years. This means that the options can be exercised within three years after vesting. All share options vested at the end of three years and no employee left during the three-year period.

The share prices and the number of share options exercised are as follows:

End of year	Share price	Options exercised at year-end
2014	63	
2015	66	
2016	75	
2017	88	10,000
2018	90	15,000
2019	95	5,000

Determine the compensation expense for each year from 2014 to 2019.

**Problem 5 – SAR using FV**

Minos Corp. grants 100 cash share appreciation rights (SARs) to each of its 500 employees, on condition that the employees remain in its employ for the next three years.

During year 1, 35 employees have left. The entity estimates that a further 60 will leave during years 2 and 3. During year 2, 40 employees have left and the entity estimates that a further 25 will leave during year 3. During year 3, 22 employees have left. At the end of year 3, 150 employees exercised their SARs, another 140 employees exercised their SARs at the end of year 4 and the remaining 113 employees exercised their SARs at the end of year 5.

The entity estimates the fair value of the SARs at the end of each year in which a liability exists as shown below. At the end of year 3, all SARs held by the remaining employees vested. The intrinsic values of the SARs at the date of exercise (which equal the cash paid out) at the end of years 3, 4 and 5 are also shown below.

Year	Fair Value	Intrinsic Value
1	14.40	
2	15.50	
3	18.20	15.00
4	21.40	20.00
5		25.00

Determine the amount of compensation recognized for each year and amount of liability reported at the end of each year.

**Problem 6 – Modification of share based payment arrangement**

On Jan. 1, 2017, Psyche, Inc. granted 20,000 share options with a fair market value of P30 per share to its key officers, conditional upon the completion of three years' service. By the end of 2018, the share price has dropped to P26 per share. Immediately, Psyche adds a cash alternative to the grant, whereby the officer can choose whether to receive 20,000 shares or cash equal to the value of 20,000 shares on vesting date, which is on Dec. 31, 2019. On Dec. 31, 2019, the share price is P24.

1. What amount of remuneration cost should the company recognize in its Dec. 31, 2019 profit or loss?
2. What is the balance of the liability component of the instrument as of Dec. 31, 2018?
3. What is the balance of the liability component of the instrument as of Dec. 31, 2019?
4. What is the balance of the equity component of the instrument as of Dec. 31, 2018?
5. What is the balance of the equity component of the instrument as of Dec. 31, 2019?

**Problem 7 – Modification of share based payment arrangement**

On Jan. 1, 2016, Drake Co. granted an equity-settled award to certain employees for services to be rendered over four years from the date of grant. The fair value of the award on grant date is P500,000. On Jan. 1, 2018, the award was modified to include cash alternative. The fair value of the cash-settled is P150,000 but it was settled at P180,000 on Dec. 31, 2019.

1. What amount of liability should Drake recognize on Jan. 1, 2018 as a result of the modification?
2. What amount of salaries expense should the company recognize on Dec. 31, 2019?

**Problem 8 – Option repricing**

On Jan. 1, 2017, Glaucus Corp. grants 100 share options to each of its 400 employees. Each grant is conditional upon the employee remaining in the employ of the company over the next three years. Glaucus estimates that the fair value of each option is P20. On the basis of weighted average probability, Glaucus estimates that 100 employees will leave during the three-year period and therefore their right to the share option will be forfeited.

During 2017, 30 employees had left and the entity decided to decrease the exercise price so that Glaucus reprices its share options, and that the repriced share options vest at the end of 2019. Glaucus

estimates that a further 70 employees will leave during 2018 and 2019. During 2018, 35 employees left the company and the company estimates that 30 employees will leave in 2019, while during 2019, 28 employees left the company.

At the end of 2018 (date of repricing), the company estimates that the fair value of each of the original share options granted (before taking into account the repricing) is P20 and that the fair value of each repriced share option is P23.

Determine the amount of remuneration expense Glaucus should report for 2017, 2018 and 2019.

**Problem 9 – Share and cash alternative**

Epione, Inc. grants to an employee the right to choose either 1,000 phantom shares or 1,200 shares with a par value of P10 per share. The grant is conditional upon the completion of three years' service. If the employee chooses the share alternative, the shares must be held for three years after vesting date.

At grant date, the entity's share price is P50 per share. At the end of years 1, 2 and 3, the share price is P52, P55 and P60, respectively. The entity does not expect to pay dividends in the next three years. After taking into account the effects of the post-vesting transfer restrictions, the entity estimates that the grant date fair value of the share alternative is P48 per share.

At the end of year 3, the employee chooses:

Scenario 1: The cash alternative

Scenario 2: The equity alternative

1. What is the total fair value of the equity component as a result of the share-based payment transaction with settlement alternative?
2. What is the compensation expense in year 1?
3. What is the compensation expense in year 2?
4. What is the compensation expense in year 3?
5. If the employee has chosen the cash alternative, what is the amount to be paid at the end of year 3?
6. If the employee has chosen the share alternative, what is the amount of share premium to be recognized?

*End of material*