

Chapter 11

Multiple-Choice Questions

1. B

As Encik Zahid Ahmad intends to start investing immediately for his retirement, use the future value of an annuity due formula. If you are using a financial calculator select the BEGIN mode.

$$\text{Future Value of an Annuity Due (FV)} = \text{PMT} \times (1+i) \left[\frac{[(1+i)^n - 1]}{i} \right]$$

Substitute: FV= 700,000 i = (6-3)/1.03 = 2.9126 n = 23 Solve for PMT = R

2. C
3. A
4. B
5. A
6. D
7. D
8. C
9. C
10. B

Short-Answer Questions

Question 1

	Strategic	Tactical	Dynamic	Constant Weighting
Type	Passive	Moderately active	Active	Active
Allocation basis	<ul style="list-style-type: none"> ▪ Adhere to base policy mix ▪ Rigid 	<ul style="list-style-type: none"> ▪ Allow for short term deviation from base policy mix ▪ Moderately flexible 	<ul style="list-style-type: none"> ▪ Assets that are declining in price will be sold and assets that are increasing in price will be purchased 	<ul style="list-style-type: none"> Assets that are declining in price will be purchased and assets that are increasing in price will be sold
Frequency of rebalancing to long term policy mix	<ul style="list-style-type: none"> ▪ Regular 	<ul style="list-style-type: none"> ▪ Regular 	<ul style="list-style-type: none"> ▪ From time to time 	<ul style="list-style-type: none"> ▪ If the asset allocation deviates by more than 5% from the base policy mix

Question 2

The factors that would likely influence the asset allocation decision would be:

- The age and investment time horizon of the individual
 - Younger individuals will be more growth oriented while older individuals will be more conservative in their approach
 - A longer time horizon may prompt an investor to undertake a higher risk portfolio. The conditions of the economy are uncertain, but peaks and troughs have greater chance of offsetting each other over time and also an individual has more time to correct any wrong decisions made over a long-term horizon. However, investors with short-term goals may be more conservative
- Risk tolerance of the individuals
 - This would depend upon the values and beliefs held by the individual as well as the personal circumstances (e.g. job stability, family commitments etc)
 - Goals of the individuals
 - Different goals require different target sums as well as different expected returns to meet

- Accordingly, this would attract different levels of risk

Starting retirement planning early gives the individual a head start in terms of:

- The benefit of a longer term horizon to potentially adjust his/her potential risks and returns
- Being able to take advantage of the compounding time value of money.

Question 3

- (a) The basic savings applicable to Clement Lim's age is RM125,000 (refer to Figure 15 in this chapter)
- (b) The minimum withdrawal amount would be RM1,000

	RM
Clement Lim's balance in Account 1	135,000
Less : Basic savings for his age	<u>(125,000)</u>
Amount in excess of basic savings	<u>10,000</u>

$$\text{Maximum withdrawal} = 30\% \times \text{RM}10,000 = \text{RM}3,000$$

Question 4

$$\begin{aligned} \text{Number of years to retirement} &= 50-27 = 23 \\ \text{Estimated last drawn salary at 55 years} &= 65,000(1+0.07)^{23} = \text{RM } 308,134 \\ \text{Yearly retirement income needs (PMT)} &= 308,134 \times 80\% = \text{RM}246,507 \end{aligned}$$

Question 5

$$\text{Present Value of an Annuity Due} = \text{PMT} + \text{PMT} \left[\frac{1 - (1+i)^{-(n-1)}}{i} \right]$$

If using a financial calculator, use the BEGIN mode.

$$\text{Substitute : PMT} = 246,507 \quad i = (5.5-4)/1,04 = 1.4423 \quad n = 30 \quad \text{FV} = 0$$

$$\text{Solve for PV} = \text{RM}6,054,860$$

Discussion Questions

Question 1

	EPF	PRS	Unit Trust
Contributions	<ul style="list-style-type: none"> ▪ Statutory ▪ Voluntary – Self employed & 1Malaysia Retirement Scheme (RM60K/annum) 	<ul style="list-style-type: none"> ▪ Voluntary ▪ No limit 	<ul style="list-style-type: none"> ▪ Voluntary ▪ No limit
Withdrawals	<ul style="list-style-type: none"> ▪ Allowed for specific purposes subject to amounts accumulated and basic savings 	<ul style="list-style-type: none"> ▪ Allowed from account B once a year subject to penalty of 8% 	<ul style="list-style-type: none"> ▪ Flexible withdrawals by selling units
Tax relief	RM6000 together with life insurance (up to Y/A 2018)	RM3,000 per year (up to Y/A 2021)	None
Dividends	Minimum 2.5%p.a.	No guarantee	No guarantee
Purpose	Retirement	Retirement	Savings, Investment and Retirement

Question 2

Some of the limitations may include:

- All the estimated rates we have been constantly applied throughout the duration of the client employment and retirement. Examples of these rates would be pre and post retirement inflation rates, pre and post retirement expected returns on investments and salary growth rates. In reality, these rates will fluctuate with economic uncertainties and changes of employment.
- The individual’s estimated age of demise is just an estimate and it could be longer or shorter
- An individual’s personal circumstances are also assumed to remain the same throughout the projected period. In real life, personal situations for instance health issues, loss of job, disabilities and/or other family obligations may change. These may create additional financial constraints for retirement planning.

In order to improve the applications of these models

- The financial plan needs to be reviewed regularly so that the client’s objectives and goals can be met on time.
- Take into account the clients changes in personal situations.

Question 3

As the description suggests, in an account-based income stream, a separate account will be allocated to each individual contributor/investor of the fund. New contributions/investment will be added and any withdrawals will be accordingly deducted from the account. Examples of account-based products are allocated and market linked pensions/annuities.

On the other hand, in non-account-based income streams, no separate individual account is maintained. The investor pays a lump sum for an income stream over a lifetime or fixed period. On the other hand, the individuals are guarantee a fixed term pension/annuity or lifetime pension/annuities. Examples of non-account-based products are lifetime and fixed term pensions/annuities

The advantages and disadvantages of account and non-account-based products are as follows:

	Account Based	Non-Account Based
Advantages	<ul style="list-style-type: none"> ▪ More flexibility of withdrawal ▪ Regular income payment ▪ Range of investment options ▪ Nomination is allowed 	<ul style="list-style-type: none"> ▪ Guaranteed fixed term or lifetime income ▪ No need to be concerned with market fluctuations. ▪ Potential of “gains” if the investor has a long life.
Disadvantages	<ul style="list-style-type: none"> ▪ No guarantee on regular income over life time or fixed term ▪ Amount of income may fluctuate according to market condition 	<ul style="list-style-type: none"> ▪ Inflexible as withdrawals are generally not allowed. ▪ Cannot participate in investment gains of the fund. ▪ May loose some investment/capital in the event of early death for lifetime products

Case Study

Question 1

Number of years to retirement = 56- 40 = 16 years

Yearly EPF contributions = 4,500 x 12 x 23% = RM12,420

Future value of current EPF balance = 215,000(1+0.057)¹⁶ = RM 521,961

Future value of ongoing EPF contributions

Use the following formula:

$$FV = \frac{PMT}{(i-g)} [(1+i)^n - (1+g)^n]$$

$$= \frac{12,420}{(0.057-0.05)} [(1+0.057)^{16} - (1+0.05)^{16}] = \underline{\underline{435,487}}$$

Total accumulated EPF balance 957,448

Question 2

Use the Future Value of a lump sum formula $(FV) = PV(1+i)^n$

$$\begin{aligned} \text{Substitute : } n &= 56 - 40 = 16 & i &= (7-4.5)/(1.045) = 2.8708 & PV &= 70,000 \\ \text{Solve for FV} & & & & & \\ & = & & & & \text{RM110,096} \end{aligned}$$

Question 3

$$\begin{aligned} & \text{Total available retirement funding} \\ & = \text{EPF balance at age 56} + \text{Accumulated investments at age 56} \\ & = \text{RM957,448} + \text{RM110,096} = \text{RM1,067,544} \end{aligned}$$

Question 4

$$\begin{aligned} \text{Sujatha's last drawn annual salary at age 56} & = 4,500 \times 12 (1 + 0.05)^{16} = \text{RM } 117,875 \\ \text{Target replacement income (PMT)} & = 117,875 \times 65\% = \text{RM } 76,619 \end{aligned}$$

Required retirement funding using CLM at the age of 56:

$$\text{Use the Present Value of an Annuity Due} = \text{PMT} + \text{PMT} \left[\frac{1 - (1+i)^{-(n-1)}}{i} \right]$$

If you are using the financial calculator use the BEGIN mode

Substitute

$$\begin{aligned} \text{PMT} &= 76,619 & i &= 5.5 - 4.5 / 1.045 = 0.95694 & n &= 80 - 56 = 24 \\ \text{Solve for PV} & & & & & = \text{RM1,651,677} \end{aligned}$$

Required retirement funding using CLM at the age of 56 = RM1,651,677

Question 5

Required retirement funding using CPM at the age of 56:

$$\text{Use the Present Value of an Annuity Due} = \text{PMT} + \text{PMT} \left[\frac{1 - (1+i)^{-(n-1)}}{i} \right] + \text{FV}/(1+i)^n$$

If you are using the financial calculator use the BEGIN mode

Substitute

$$\begin{aligned} \text{PMT} &= 76,619 & i &= 5.5 - 4.5 / 1.045 = 0.95694 & n &= 80 - 56 = 24 & \text{FV} &= 1,651,677 \\ \text{Solve for PV} & & & & & & & = \text{RM2,965,864} \end{aligned}$$

Required retirement funding using CLM at the age of 56 = RM2,965,864

Question 6

Some important considerations are:

- Accuracy of the estimates for pre and post investment rates, inflation rates, salary growth rates and others.
- Longevity concerns i.e. the risk that the individual may outlive his/her retirement nest egg.
- Changes in personal situations e.g. health issues, loss of job and/or disabilities that may hinder the achievement of the target retirement funding
- Any other relevant answer.

Question 7

	CLM	CPM
Advantages	<ul style="list-style-type: none">• Lesser funding required	<ul style="list-style-type: none">• Availability of residual for legacy funding• More conservative estimates• Residual value can act to buffer longevity concerns
Disadvantages	<ul style="list-style-type: none">• No buffer for longevity risk	<ul style="list-style-type: none">• More funding required