Economics 1B

Only study guide for ECS1601

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Introduction

Welcome to the second part of your introduction to economics. We hope that you will find this module mentally stimulating and worthwhile.

PURPOSE OF THE MODULE

The purpose of the module is to gain insight into macroeconomic theory and variables such as total production and income of a country, economic growth, unemployment, inflation, and the balance of payments.

MODULE OUTCOMES

After you have studied this module, you should be able to

- explain the functioning of the economy as a whole
- assess the performance of the economy

CRITICAL CROSS- FIELD OUTCOMES

As a student enrolled for a tertiary qualification, you will be exposed to a formative learning experience that should not only educate you in the chosen discipline but also form your character.

The formative nature of the qualification is described in the critical cross-field outcomes that all tertiary qualifications aim to achieve. Critical cross-field outcomes refer to broad generic outcomes encompassing various areas, which all qualifications and standards should aim to promote.

After you have completed this tertiary qualification, you should be able to

- identify and solve problems in such a way that you display responsible decision making using critical and creative thinking
- work effectively with others as a member of a team, group, organisation or community
- organise and manage yourself and your activities responsibly and effectively
- collect, analyse, organise and critically evaluate information
- communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written persuasion
- use science and technology effectively and critically, showing responsibility towards the environment and health of others
- demonstrate an understanding of the world as a set of related systems by recognising that problem solving does not happen in isolation

In order to contribute to your full personal development as a student (and to that of every other student) as well as the social and economic development of society as a whole, any programme of learning should have the underlying intention of making an individual aware of the importance of

- reflecting on and exploring a variety of strategies to learn more effectively
- participating as responsible citizens in the life of local, national and global communities
- being culturally and aesthetically sensitive across a range of social contexts
- exploring education and career opportunities
- developing entrepreneurial opportunities

THE PRESCRIBED BOOK

The following book is prescribed for this module:

Mohr, P, Fourie, L & Associates. 2015. *Economics for South African students*.

5th edition. Pretoria: Van Schaik.

NOTE: If you already have a copy of the 4th edition of the textbook, you may use it if you prefer not to buy the 5th edition. We shall provide a copy of the study guide for the 4th edition textbook under *Additional Resources* on MyUnisa. Note, however, that all other study material will only refer to the 5th edition of the textbook, and that section numbers will therefore not correspond to that of the 4th edition.

The prescribed book can be obtained from the University's official booksellers (refer to the list of official booksellers and their addresses listed in the *Study @ Unisa* brochure). If you have difficulty in locating the book at these booksellers, please contact the Prescribed Book Section at telephone 012 429-4152 or e-mail vospresc@unisa.ac.za

STUDYING ECONOMICS

The main requirements for the study of economics are a willingness to think and an active approach to learning. Economics is not a subject that can simply be memorised – it has to be understood. This means that you will always have to think about what you are studying and that you must try to **understand** the work. The solution is to study actively. Use a pen and paper to work out each argument by drawing diagrams, doing calculations, and writing down the logic of the argument. It is not sufficient simply to read the prescribed book and underline or highlight the key concepts.

Do not omit any of the chapters prescribed. These chapters follow a logical pattern. If you skip some chapters, you will not be able to follow or understand the reasoning in the study guide as a whole.

THE STUDY GUIDE

This study guide has three basic functions:

- It outlines the contents of the module, in other words, it indicates which parts of the prescribed book are compulsory for the examination.
- It indicates how you should approach each chapter and shows the most important topics and diagrams (figures) you will have to master.
- It provides a series of questions you must answer to assess your progress and to prepare for the examination.

It has been designed in such a way as to guide you through the prescribed book in a systematic and informative way and to help you get to know the economist's analytical toolkit. Therefore, you cannot study the prescribed book without consulting the study guidelines.

You will be required to study only some parts of the prescribed book. The prescribed sections are clearly indicated in this study guide. Those sections of the prescribed book which are not referred to in this guide do not form part of the prescribed material. We will provide you with some guiding remarks or activities (questions) to ensure that you have grasped the content of the passages you have read. We may also provide you with additional material or explanations.

This guide is divided into 11 **learning units** that cover the compulsory chapters of the prescribed book:

Prescribed textbook		Topic
Chapter 3	Learning unit 1	Production, income and spending in the mixed economy
Chapter 14	Learning unit 2	The monetary sector
Chapter 15	Learning unit 3	The government sector
Chapter 16	Learning unit 4	The foreign sector
Chapter 13	Learning unit 5	Measuring the performance of the economy
Chapter 17	Learning unit 6	A simple Keynesian model of the economy
Chapter 18	Learning unit 7	Keynesian models including the government and the foreign sector
Chapter 19	Learning unit 8	More on macroeconomic theory and policy
Chapter 20	Learning unit 9	Inflation
Chapter 21	Learning unit 10	Unemployment
Chapter 22	Learning unit 11	Economic growth and business cycles

Each learning unit comprises the following sections:

■ Outcomes

Pay close attention to the outcomes of each learning unit. Remember one of the main functions of the examinations is to evaluate whether you have mastered the outcomes of the module. (Also see the Checklist bullet below).

■ Contents

The contents section guides you through the study material. Each subsection has a heading and study instruction. If the study instruction tells you to study a section, you need to make sure that you know the particular section well because your knowledge and understanding of the topic covered in the subsection will be tested in the examination.

Some of us learn by memorising definitions or formulas. However, only by actually doing something, you will realise that you **can** describe or define it. Therefore, after each section or subsection we will introduce you to activities to help you practice your newly acquired knowledge, skills and values. At the end of each learning unit we will provide answers to some of the questions (marked with an asterisk*) to guide you to the most appropriate answer.

To be successful in economics, it is essential that you take responsibility for your learning and practice your newly acquired skills.

■ Solutions

Take care to work through the solutions. You should then get an idea of whether you have mastered the particular sections.

■ Checklist

The checklist is based on the learning unit outcomes listed in the study guide. In other words, it indicates the things you should be able to do. The outcomes are divided into different categories: Concepts, Explanations, Diagrams and Calculations. These should give you a good indication of the kind of questions you can expect from each learning unit.

Next to the items in the checklist are a number of check boxes: "Well", "Satisfactory", "Must redo" and "Need help". If you think you are able to do something really well, for instance, explaining the monetary transmission mechanism, mark the "Well" box. If you think you are able to explain it but are unsure about certain aspects or find it a bit difficult, mark "Satisfactory". If you are a bit lost but know something about the topic and will benefit from spending more time on it, mark "Must redo". If you really do not know what is going on, mark the "Need help" box. In so doing you will get an indication of what you know well, what you are coping with, on which of the sections you need to spend more time, and with what you need help. Do not hesitate to contact one of the lecturers should you need help. See Tutorial Letter 101 for the contact details of the lecturers. (Do not leave this until the evening before the examination.)

IMPORTANT VERBS

As a student you should know exactly what is expected when certain verbs are mentioned in an activity or examination question. The verbs generally used in economics are as follows:

compare	Identify the similarities or differences between facts, viewpoints, concepts or ideas
contrast/distinguish/what is the difference between?	Point out the differences between certain objects or concepts
define	Give a short and concise definition of a subject or topic
describe	Name the characteristics of an object or topic
discuss	Discuss a topic by examining its various aspects
explain	Explain and clarify to ensure that the reader clearly understands you
explain with the aid of (a) diagram(s)	Draw a fully annotated diagram. Make sure all the axes and curves are labelled. Then explain the diagram in such a manner that the reader can follow and understand it, in other words, tell the reader what is happening in the diagram
give/identify/list/name	Give only the facts without any discussion
illustrate	(Usually) explain your answer with the aid of a diagram (or figure)
summarise	State the main points in a brief account

USING DIAGRAMS

To be able to use a diagram (or figure) correctly you must learn to read, to draw and to explain a diagram:

Read: This means you have to understand the determinants (or factors) of each curve and how they affect the specific curve.

Draw: Each diagram, and all its axes and curves, must be labelled. The initial point of equilibrium must be indicated. If it changes, this must also be noted on the diagram.

Explain:You should be able to explain the diagram in words.

Production, income and spending in a mixed economy

1

LEARNING UNIT

In this learning unit, we use circular flow models to introduce the different participants in the economy. The major flows in the economy and the high degree of interdependence form the basis of our understanding of macroeconomics.

OUTCOMES

After you have worked through this learning unit, you should be able to

- identify the three major flows in the economy
- distinguish between a flow and a stock
- explain the interdependence of households and firms
- explain the interaction of households and firms by means of the circular flow of goods and services and the circular flow of income and spending
- identify the various economic participants
- identify the various injections into and leakages from the circular flow of income and spending
- explain the interaction of the different sectors in the economy by means of the circular flow of income and spending

CONTENTS

1.1 Production, income and spending

STUDY

Sections 3.1 and 3.2 of the prescribed book

Box 3-1 of the prescribed book

The three basic macroeconomic flows are introduced in this section. The magnitudes of these flows are discussed in learning unit 5 under the heading "Three methods to calculate the GDP". The three methods to measure the GDP (spending, income and production) actually involve measuring the same flow, but they are calculated at different points in the circular flow. You should know what the difference between a stock and a flow is.

ACTIVITY 1.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The three major flows in the economy as a whole are total production, total income and total spending.		
(2)	The two basic sets of participants in any economy are households and firms.		
(3)	Production is a stock and income is a flow.		
(4)	The balance on your savings account on a particular day is a stock variable.		
(5)	Consumption is a flow variable.		
(6)	Investment is a stock variable.		
(7)	Capital is a stock variable.		

Short questions

(a) What is the difference between production and income? (4)

(b) Name the three major flows in the economy as a whole and explain how they are related. (6)

(c) What is the difference between a stock variable and a flow variable? Give one example of each. (4)

1.2 Sources of production: the factors of production

STUDY

Section 3.3 of the prescribed book

In this section, we revisit the four factors of production which were introduced in the Economics 1A module. The factors of production are:

- Natural Resources (Land): these are resources such as water, natural forests, or mineral deposits that are used in the production of a good or service.
- Labour: refers to all the work that workers perform in the production of a good or service.
- Capital: includes all the machinery, tools and buildings used to produce a good or service.
- Entrepreneurship: refers to ability to combine all other factors of production to create goods and services.

ACTIVITY 1.2

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The four factors of production are natural resources, labour, entrepreneurship and money.		
(2)	There is an unlimited supply of natural resources.		
(3)	The term “human capital” refers to the number of workers.		
(4)	The entrepreneur is the driving force behind the production process.		
(5)	Capital refers to all tangible goods that are used to produce other goods.		
(6)	A pair of scissors used in a factory where clothes are produced, is an example of a capital good.		
(7)	A pair of scissors used at home to cut paper, is an example of a consumer good.		
(8)	The N3 highway connecting Johannesburg and Durban is an example of a capital good.		
(9)	Money is a means of exchange and not a factor of production.		
(10)	A labour-intensive production process is dominated by capital.		

Short question

(a) Name the four factors of production. (4)

1.3 Sources of income: the remuneration of the factors of production

STUDY

Section 3.4 of the prescribed book

This section covers the income earned by the different factors of production and should not pose any problems.

ACTIVITY 1.3

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Rent is the income earned by the production factor capital.		
(2)	Interest is the income earned by the production factor capital.		
(3)	Wages and salaries are earned by the production factor labour.		
(4)	The production factor entrepreneurship earns profit.		
(5)	Wealth and income have the same meaning.		
(6)	Wealth, for example, includes a large house and a savings account at a commercial bank.		
(7)	Income is earned by the four factors of production.		

Short question

(a) Name the four factors of production and the income earned by each. (8)

1.4 Sources of spending: the four spending entities

STUDY

Sections 3.5 to 3.7 of the prescribed book

Box 3-4 of the prescribed book

In these sections, we turn our attention to the flow of spending, the third element of the basic circular flow model, and show how the participants in a mixed market economy are interrelated via the circular flow of goods and services and the circular flow of income and spending. There are four sectors and two sets of markets in an economy.
The sources of spending/sectors/participants in the economy are:

- Households (C)
- Firms (I)
- Government sector (G)
- Foreign sector (Exports (X) minus Imports (Z))

The two sets of markets are:

- The goods market
- The factor market

Households sell their factors of production in the factor market and use their income to purchase goods and services in the goods market.

Firms buy factors of production in the factor markets and use them to produce goods and services, which are then sold in the goods market.

Government receives income from households and firms through taxation. Also, government purchases goods and services in the goods market and factors of production in the factor markets.

In the foreign sector, some of the goods and services produced in the economy are exported to other countries, while other goods and services are imported into the country.

Therefore, total spending in the economy consists of all the four sectors in the economy and can be written as C + I + G + X - Z.

Note that government spending is an injection into the circular flow of income and spending, while taxes are a withdrawal from it. Households and firms, the two basic sectors in a market economy, as well as the goods market and the factor market were introduced in the Economics 1A module. The analysis is extended with the introduction of the government sector. Make sure that you know what the government sector entails and how it is related to households and firms.

The introduction of the foreign sector to the model means that exports and imports have to be included too. It is important to note that exports are an injection into the circular flow of income and spending, while imports are a withdrawal from it.

The diagrams discussed in these sections are very important as they can be used to put most of the textbook in perspective. Starting with figure 3-1, which only shows the process, then by introducing the participants as well as the markets (figures 3-2 to 3-6), these diagrams show how the various participants are interrelated.

The last sector to be added to our circular flow model is the financial sector, which serves as a link between those who save and those who require funds for investment spending.

ACTIVITY 1.4

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Members of households are called consumers.		
(2)	Consumers are rational, in other words, they will always try to maximise their satisfaction given the means at their disposal.		
(3)	Households are responsible for the spending on consumer goods.		
(4)	Capital goods are purchased by firms.		
(5)	Firms are mainly involved in consumption while households are mainly involved in production.		
(6)	There are two sets of markets in the economy: goods markets (for example, the market for tomatoes) and factor markets (for example, the labour market).		
(7)	Firms purchase in the factor markets and sell in the goods markets.		
(8)	Households sell in the factor markets and purchase in the goods markets.		
(9)	The major flows associated with government are government spending, taxes and transfer payments.		
(10)	Taxes are a leakage (or withdrawal) from the circular flow of income and spending.		
(11)	Government spending is an injection into the circular flow of income.		
(12)	An open economy is an economy in which no government intervention exists.		
(13)	The foreign sector is linked to the domestic flow of income and spending through Imports and exports.		
(14)	Exports are a leakage (or withdrawal) from the circular flow of income and spending.		
(15)	Imports are an injection into the circular flow of income.		
(16)	Investment is a leakage (or withdrawal) from the circular flow of income and spending.		
(17)	Saving is an injection into the circular flow of income.		

Short questions

(a) What are the two basic sets of markets in the economy? (4)
(b) Explain the goods and services circular flow by means of a figure. (4)
(c) Explain the income and spending circular flow by means of a figure. (4)
(d) Illustrate the linkages between government, households and firms using the circular flow model of income and spending. (6)
(e) Illustrate the linkages between the foreign sector and government, households and firms using the circular flow model of income and spending. (8)
(f) Illustrate how the financial sector fits into the circular flow of income and spending. (4)
(g) List
    (i) three important injections into the basic circular flow of income and spending
    (ii) three important leakages or withdrawals from this flow (6)
(h) List the components of the total spending on goods and services produced in the economy and summarise them by using an equation. (6)

1.5 A few further key concepts

STUDY

Section 3.8 of the prescribed book

Box 3-5 of the prescribed book

In this section a number of concepts are used to enhance our understanding of the circular flow model of a mixed market economy. The use of these concepts will become clearer as we progress through the module.

Appendix 3-1 of the prescribed book is not prescribed for this module

SOLUTIONS

ACTIVITY 1.1

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) F
(4) T
(5) T
(6) F
(7) T

ACTIVITY 1.2

TRUE/FALSE STATEMENTS

(1) F
(2) F
(3) F
(4) T
(5) T
(6) T
(7) T
(8) T
(9) T
(10) F

ACTIVITY 1.3

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) T
(4) T
(5) F
(6) T
(7) T

ACTIVITY 1.4

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) T
(4) T
(5) F
(6) T
(7) T
(8) T
(9) T
(10) T
(11) T
(12) F
(13) T
(14) F
(15) F
(16) F
(17) F

CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
identify the three major flows in the economy				
distinguish between a flow and a stock				
identify the two basic sets of markets in the economy				
identify the various economic participants/list the components of total spending				
identify the various injections into and leakages from the circular flow of income and spending				
Diagrams				
I am able to show the following with the aid of a diagram:				
the interaction of households and firms by means of the circular flow of goods and services and the circular flow of income and spending – figures 3-3 and 3-4				
the interaction of the different sectors in the economy by means of the circular flow of income and spending – figures 3-1 to 3-8				

The monetary sector

2

LEARNING UNIT

OUTCOMES

After you have worked through this learning unit, you should be able to

- explain what money is and explain its functions
- define M1, M2 and M3
- discuss the functions of the SARB
- explain and illustrate with the aid of a diagram the interaction between the interest rate and the demand for money
- discuss the instruments of monetary policy

CONTENTS

STUDY

Section 14.1 of the prescribed book

ACTIVITY 2.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

T	F

T	F

(1) An economy in which goods are traded for other goods is called a barter economy.

2) The use of money eliminates the need for a double coincidence of wants associated with a barter economy.

(3) The essential function of money is that it serves as a medium of exchange (or means of payment).

(4) When inflation is experienced, money loses some of its usefulness as a store of value.

(5) Individuals can hold their wealth in the form of money only, in other words money is the only possible store of value.

(6) Money is a financial asset.

(7) During inflation it is often more advantageous to keep certain assets other than only money.

(8) Wealthy people generally keep most of their assets in the form of money.

Short questions

(a) What is the difference between a monetary economy and a barter economy? (2)

(b) List the three basic functions of money and explain briefly what each one means. (6)

(c) Define money. (3)

(d) Differentiate between money, income and wealth. (3)

2.2 Different kinds of money

STUDY

Section 14.2 of the prescribed book

Box 14-1 of the prescribed book

This section deals with the different kinds of money. It is important to note that originally the intrinsic value and exchange value of money were the same (for example, a gold coin). At present, the intrinsic value of money is nothing (the paper value of a note is nothing), but the exchange value is high (think about a R200 note). In other words, its value is based on confidence.

ACTIVITY 2.2

Indicate whether the following statements are **true** (T) or **false** (F

Note: Answers are provided at the end of this learning unit.

T	F

(1) The South African money supply is fully backed by the amount of gold in the vaults of the SARB.

(2) Demand deposits can be withdrawn immediately by writing out a cheque (which is generally accepted as payment) and therefore demand (or cheque) deposits form part of the quantity of money.

Short questions

(a) List four properties a commodity must have in order to serve as money. (4)

(b) Why are credit cards not seen as money? (2)

2.3 Money in South Africa

STUDY

Section 14.3 of the prescribed book

The different measures of the quantity of money used by the SARB are introduced in this section. You must be able to define M1, M2 and M3. Note that demand deposits are greater than coins and banknotes in equation 15-1.

ACTIVITY 2.3

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

T	F

(1) The quantity of money in South Africa consists largely of coins and banknotes.

(2) In South Africa, there are at least three different measures of the quantity of money: M1, M2 and M3.

(3) M1 is the narrowest measure of money and consists of coins, notes and demand deposits.

(4) M1 relates to the function of money as a medium of exchange.

Short question

(a) What is the main difference between M1, M2 and M3? (2)

2.4 Financial intermediaries

STUDY

Section 14.4 of the prescribed book

Box 14-2 of the prescribed book

The place of the financial sector in the economy, as introduced in section 3.7 of the prescribed book, is revisited in this section. Take note of the main function of financial intermediaries (to act as an intermediary between the surplus units and deficit units in the economy).

ACTIVITY 2.4

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

T	F

(1) The major function of a financial intermediary such as a bank is to act as a link between the surplus units in the economy and the deficit units.

(2) Interest is the amount that a borrower has to pay a lender for the use of the funds concerned.

Short questions

(a) Distinguish between real and financial transactions. (2)

(b) Explain the basic function of a financial intermediary. (3)

2.5 The South African Reserve Bank

STUDY

Section 14.5 of the prescribed book

The functions of the South African Reserve Bank (SARB) are explained in this section. The central bank plays an important role in the South African economy and you must know what its main functions are.

ACTIVITY 2.5

Short questions

(a) List four of the functions of the SARB. (4)
(b) Explain what is meant by a clearing bank. (2)
(c) Explain the term "lender of last resort". (3)

2.6 The demand for money

STUDY

Section 14.6 of the prescribed book

Box 14-3 of the prescribed book

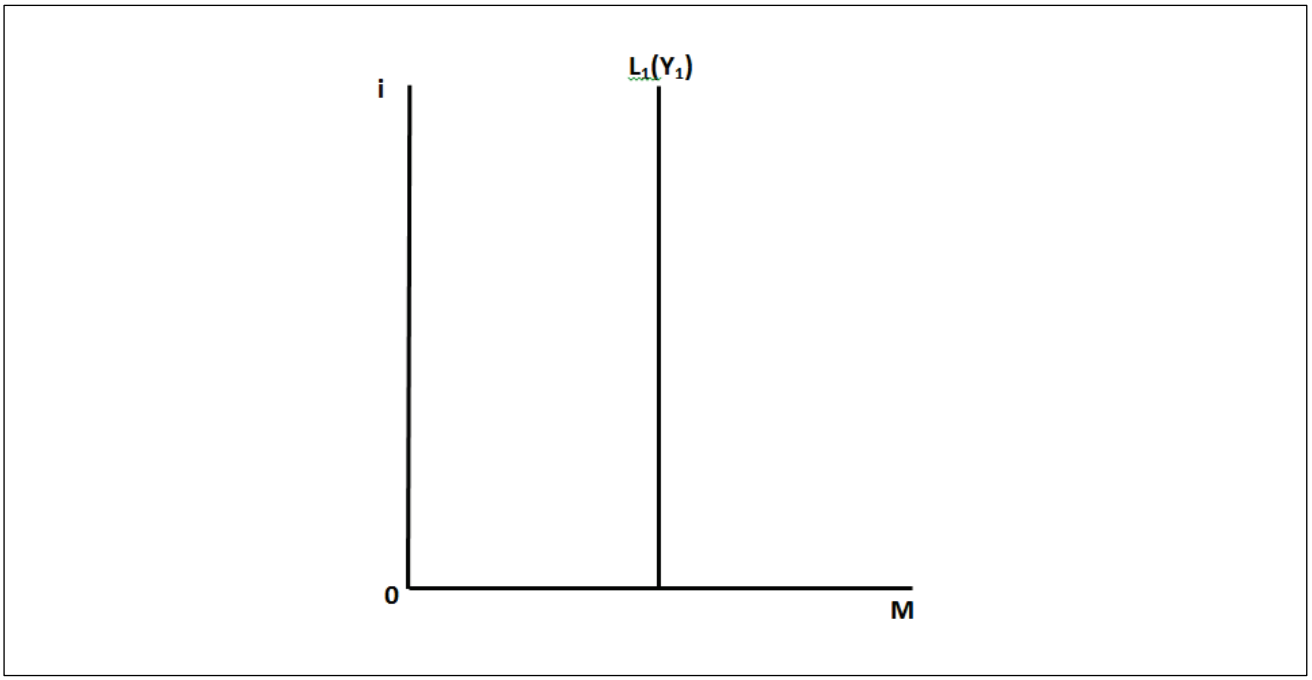
Box 14-4 of the prescribed book

Table 14-1 The demand for money (or liquidity preference): a summary

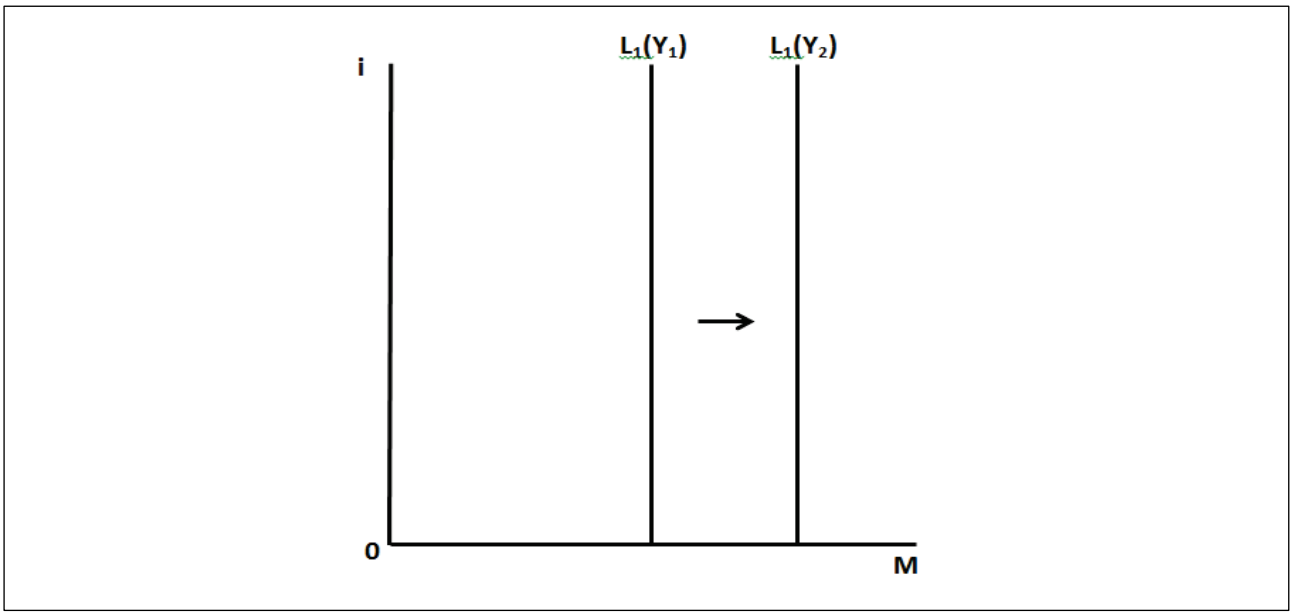
This is an extremely important section. Ensure that you understand the various aspects of the demand for money as summarised in table 14-1 and figure 14-1. Study this section in detail.
Then use the following step-by-step instructions to make sure you understand this section:

- Make sure that you can explain the differences between money and bonds. It is important that you remember that we assume that you will earn no interest on money, while interest is earned on bonds.
- Make sure you understand that money is held for transactions purposes but also as an asset. Keep in mind that no interest will be earned on money, even when it is held as an asset. The money that is held for transaction purposes is called the transactions demand for money or the demand for active balances. When money is held as an asset (instead of bonds) it is called the speculative demand for money or the demand for passive balances.

- The demand for money is represented using the symbol *L*. This refers to the fact that money is the most *liquid* asset. When an asset is liquid, it means that it is relatively easy to transfer it into cash (or money), which can be used for transaction purposes as a means of payment. Money is readily available to be used for payment; therefore it is the most liquid asset. If you own an asset, such as a house, it will take quite long to sell the house and obtain cash that can be used for payment purposes. Therefore a house is not a very liquid asset. The demand for active balances is depicted by L_1 and the demand for passive balances is depicted by L_2.
- First make sure you understand that the *transactions demand for money* (or demand for active balances), which we indicate using L_1. The transaction demand depends on the income level (Y). When income (Y) increases, the amount of money that people wish to hold for transactions purposes, will also increase. The transactions demand for money does not depend on the interest rate level. Therefore we show it on a diagram of the money market as follows:



The L_1 curve is vertical which shows that the demand for transactions balances does not depend on the interest rate level (i). The position of the curve (how far it lies to the left or right) will be determined by the income level , Y. When the income level increases from Y_1 to Y_2, the demand curve for money for transaction purposes (L_1) will shift to the right, as people would need more money. We show it in the following diagram:

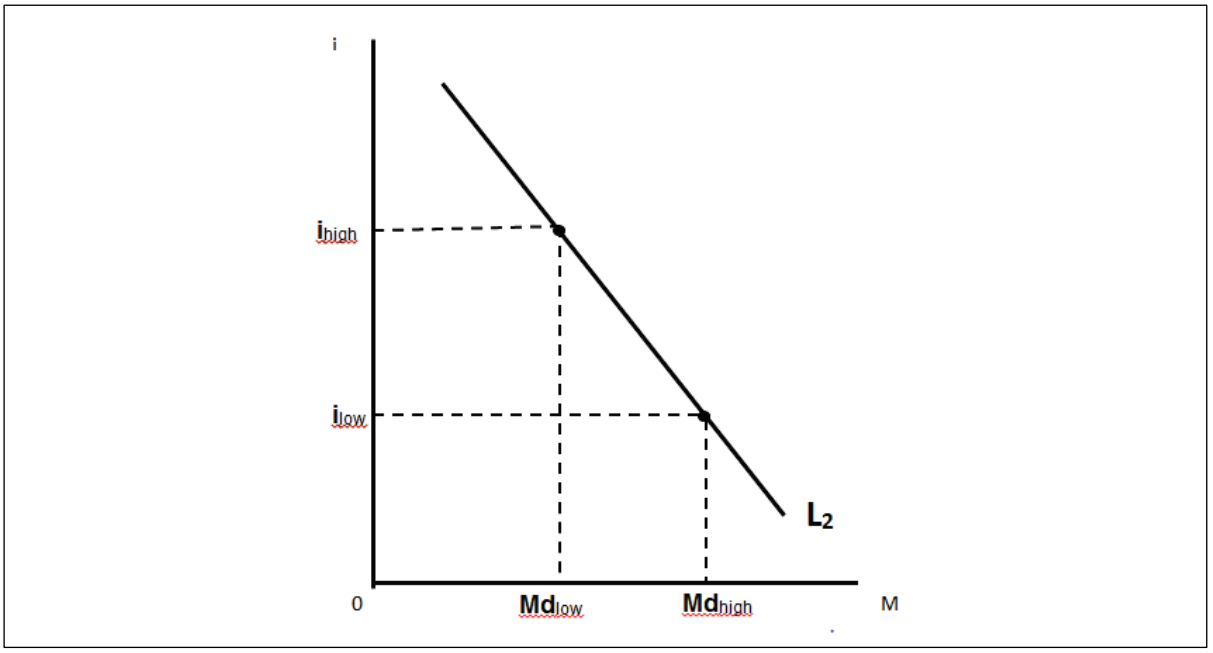


When the income level decreases, for instance from Y_1 to Y_3, the demand curve for money for transactions purposes (L_1) will shift to the left, as people will hold less money for transactions purposes. We show it in the following diagram:

- Next you have to make sure you understand the demand for money as an asset, which is also called the *speculative demand* for money or the demand for *passive balances*. When we study the demand for money as an asset, we assume that a person can choose between money (on which no interest is earned) and bonds when deciding how to allocate their wealth. Bonds are interest bearing assets which are relatively easy to sell, therefore bonds are relatively liquid assets (compared to, for example, a house which is more difficult to sell).

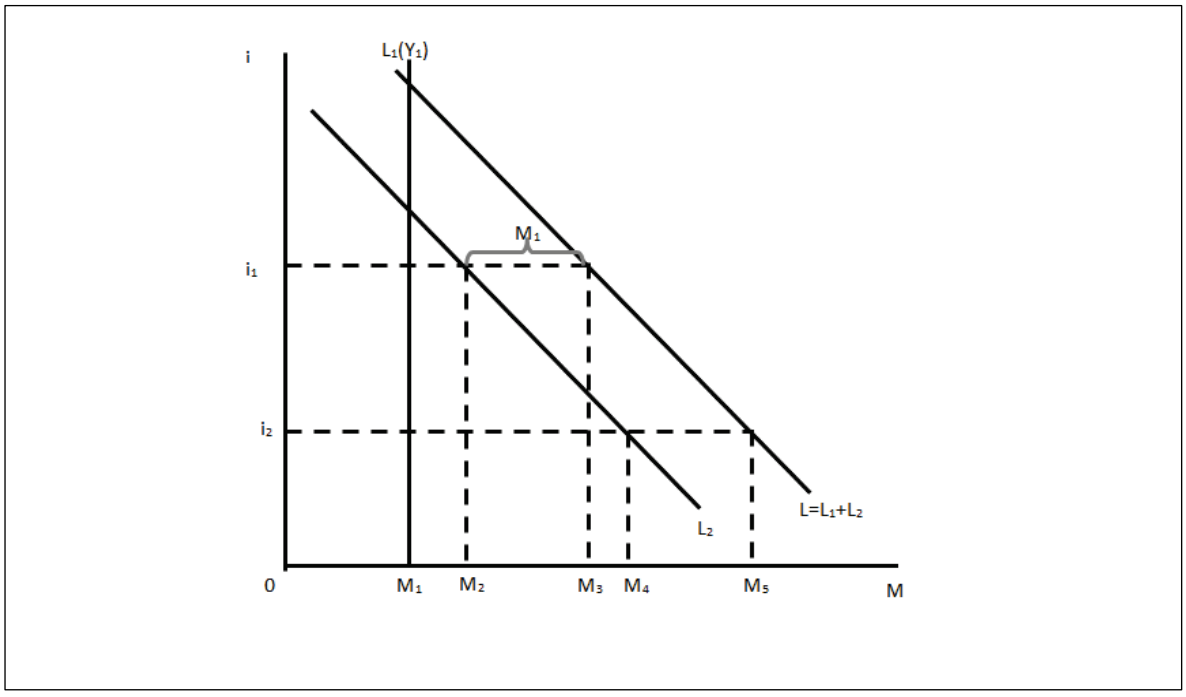
- Money is the most liquid asset that you can hold – you can use it immediately to buy something should you wish to do so. If you hold any other financial asset, such as a bond, you first have to sell the asset to convert it to money before you. Thus the advantage of holding money is that it is available immediately for transaction purposes. The disadvantage of holding money is that you lose out on the interest you could have earned if you held interest bearing bonds instead. We call this the opportunity cost of holding money. The opportunity cost of holding money is therefore equal to the interest that you can earn on bonds.

When the interest rate is high (e.g. i_{high} in the following diagram), the opportunity cost of holding money (i.e. the interest that can be earned on bonds) is high and therefore people will choose to hold more bonds and less money for speculative purposes. The amount of money demanded for speculative purposes will therefore be relatively low, e.g. Md_{low} in the diagram. When the interest rate is low (e.g. i_{low} in the following diagram), less interest will be lost by holding money instead of bonds, and therefore the amount of money demanded for speculative purposes will be higher, such as Md_{high} in the diagram. The L_2 curve shows the speculative demand for money. As explained in the textbook, a negative relationship exists between the interest rate level and the amount of money demanded to be held for speculative purposes.



- Now you have to make sure you understand how to derive the *total demand for money*. If we add L_1 (the demand for active balances) and L_2 (the demand for passive balances) we get the total demand for money (L).
  Make sure you understand that $L=L_1+L_2$.

  This is explained in the following diagram:

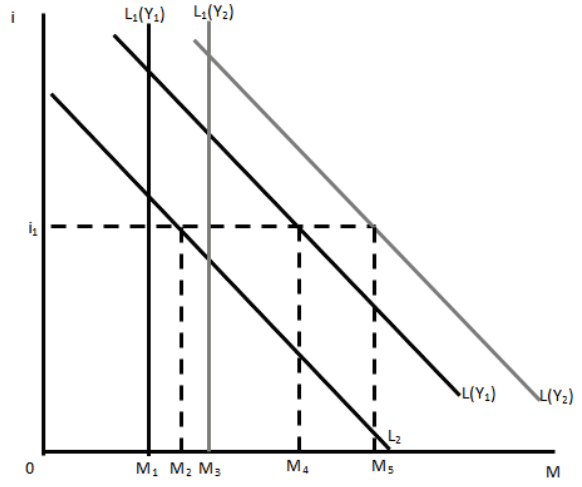
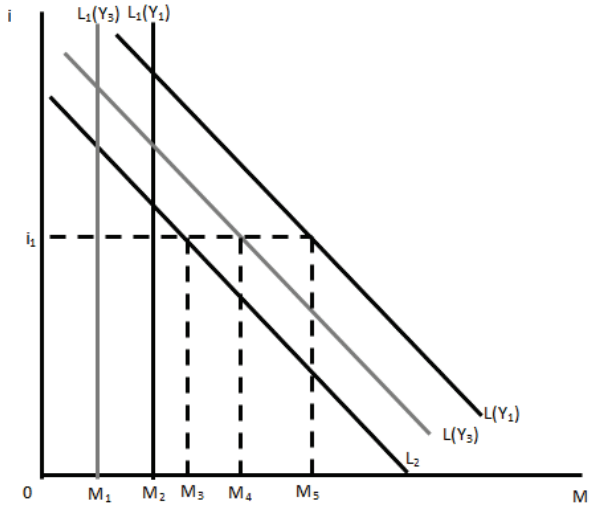


The amount of money demanded for active balances (L_1) at income level Y_1 is equal to M_1. The amount of money demanded for active balances stays the same regardless of the interest rate level. At interest rate i_1 the amount of money demanded for passive balances (L_2) is equal to M_2. Therefore, the total amount of money demanded (L) at interest rate level i_1 is equal to $M_1+M_2=M_3$.

When the interest rate level decreases to i_2 the amount of money demanded for active balances stay the same at M_1. The amount of money demanded for passive balances now increases to M_4 as the opportunity cost of holding money has decreased (you will lose less interest than at interest rate level i_1). Therefore, the total amount of money demanded (L) at interest rate level i_2 is equal to $M_1+M_4=M_5$..

- How will a change in the income level affect the amount of money demanded (L)?

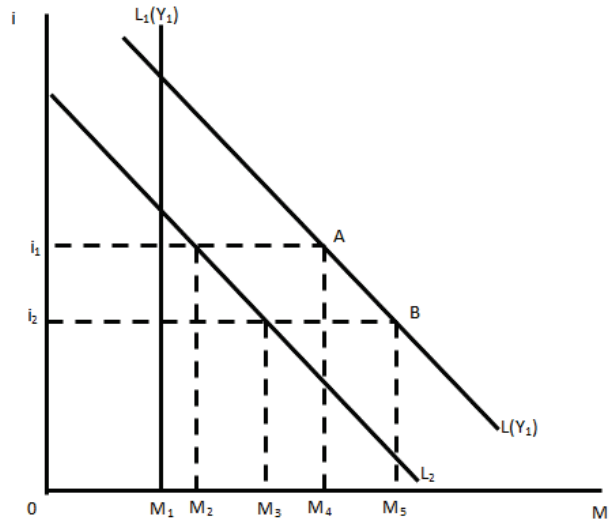
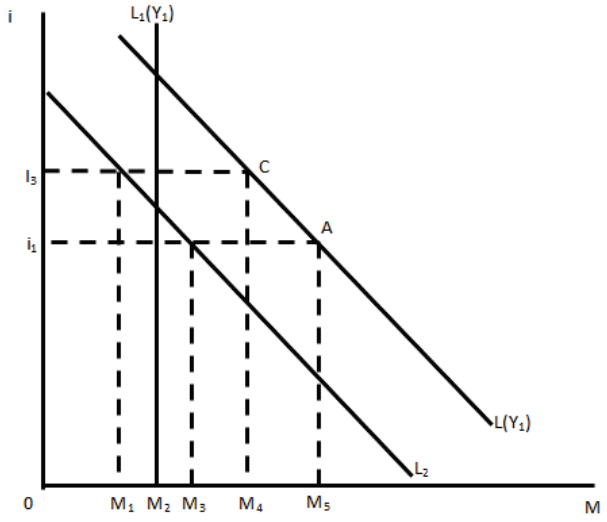
  When the income level increases, the active demand for money L_1 increases, and therefore shifts to the right. Therefore, the L curve will also shift to the right when income increases. When income decreases, the active demand for money L_1 decreases, and therefore shifts to the left. Therefore the L curve will also shift to the left when income decreases (see the following diagrams) and the interest rate remains at 1_1 :

Income increases to Y_2	**Income decreases to Y_3**
	
Amount of money demanded for active balances increases from M_1 to M_3. Amount of money demanded for passive balances stay at M_2. Total amount of money demanded increases from M_4 to M_5.	Amount of money demanded for active balances decreases from M_2 to M_1. Amount of money demand for passive balances stay at M_3. Total amount of money demanded decreases from M_5 to M_4.

- How will a change in the interest rate level affect the amount of money demanded (L)?

When the interest rate level decreases, the opportunity cost of holding money decreases. You will lose less interest if you hold money instead of bonds. Therefore the amount of passive balances that people would like to hold increases. The active demand for money stays the same. The total amount of money that people in the economy want to hold increases as indicated by the downward movement along the L curve.

When the interest rate level increases, the opportunity cost of holding money increases. You will lose more interest if you hold money instead of bonds. Therefore the amount of passive balances that people would like to hold decreases. The active demand for money stays the same. The total amount of money that people in the economy want to hold decreases as indicated by the upward movement along the L curve.

Interest rate level decreases to i_2	**Interest rate level increases to i_3**
	
Amount of money demanded for active balances stay the same at M_1. Amount of money demanded for passive balances increases from M_2 to M_3. Total amount of money demanded increases from M_4 to M_5.	Amount of money demanded for active balances stay the same at M_1. Amount of money demanded for passive balances stay at M_3. Total amount of money demanded decreases from M_5 to M_4.

- The last part of section 14.6 discusses the interest rate. Make sure you understand what an interest rate is and that the interest rate level shown in the above diagrams represents the general interest rate level.
- Box 14-4 explains the inverse relationship between the interest rate on a bond and the price of a bond. Make sure that you understand this relationship and that you will be able to explain it.

ACTIVITY 2.6

Indicate whether the following statements are **true** (T) or **false** (F)

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The opportunity cost of holding money is the interest that could have been earned by holding interest-bearing assets (for example, bonds) instead.		
(2)	The demand for money arises from the functions of money as a medium of exchange and as a store of value.		
(3)	The quantity of money demanded for transaction purposes is related to the function of money as a medium of exchange.		
(4)	The demand for money for speculative purposes arises from the function of money as a store of value.		
(5)	There is a positive relationship between the quantity of money demanded for speculative purposes and the level of income.		
(6)	Since money is the most liquid of all assets, the demand for it is also called liquidity preference.		
(7)	The quantity of money demanded for transactions and precautionary purposes is also called the demand for active balances and is related to the level of income in the economy.		
(8)	If the interest rate is high, the quantity of money demanded for speculative purposes will also be high.		
(9)	The demand for passive balances refers to the precautionary demand for money.		
(10)	There is an inverse relationship between the interest rate and the quantity of money demanded for speculative purposes.		
(11)	The total quantity of money demanded depends on the level of income and the interest rate.		
(12)	An increase in income will result in an increase in the quantity of money demanded at each interest rate, which can be illustrated by a rightward shift of the money demand curve.		

Short questions

Note: The solution to the question marked with an asterisk (*) is provided at the end of this learning unit.

(a) What is the opportunity cost of holding money? (2)
(b) Define the demand for money. (2)
(c) Name the three motives for holding money distinguished by John Maynard Keynes. (3)
(d) What is the main determinant of:
    (i) the quantity of money demanded for transaction purposes?
    (ii) the quantity of money demanded for precautionary purposes?
    (iii) the quantity of money demanded for speculative purposes? (3)
(e) Distinguish between active balances and passive balances and name the main determinant of the quantity demanded of each type. (5)
(f) *Use diagrams to illustrate how the total demand for money (or liquidity preference) in the economy is made up. (6)

2.7 The stock of money: how money is created

STUDY

Section 14.7 of the prescribed book

Box 14-5 of the prescribed book

The role of banks in the money creation process is highlighted in this section. It is essential that you understand:

- how money is created
- the role that banks play in the money creation process
- the factors that will affect the money supply

Also make sure you understand figure 14-2. It explains how a change in the interest rate level affects money supply in the economy. You should be able to explain why a decrease in the interest rate results in an increase in the quantity of money in the economy, and vice versa.

ACTIVITY 2.7

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	In South Africa money is created exclusively by the South African Reserve Bank Banks.		
(2)	The stock of money consists largely of bank deposits and banks create these deposits by making loans.		
(3)	Money creation by banks is constrained by the demand for bank loans.		
(4)	The South African Reserve Bank uses changes in interest rates in an attempt to regulate the rate at which new money is created.		
(5)	The stock (quantity) of money in the economy is essentially determined by the interaction of the interest rate and the demand for money.		

Short questions

(a) Briefly explain how banks can be create money. (5)
(b) Explain a demand-determined money stock. (6)
(c) Using a diagram, explain how the money stock is determined. (6)
(d) Use a diagram to show how the stock of money changes if the level of income in the economy decreases. (3)
(e) Use a diagram to show how the stock of money changes if the interest rate decreases. (3)

2.8 Monetary policy

STUDY

Section 14.8 of the prescribed book

Monetary policy can be defined as the measures that monetary authorities take to influence the quantity of money or the rate of interest, with a view to achieving stable prices, full employment and economic growth. In South Africa, the SARB formulates and implements monetary policy.

We can distinguish between expansionary monetary policy and contractionary monetary policy. You will learn more about expansionary policy and contractionary policy in Learning Unit 8. Expansionary policy refers to measures aimed at stimulating the economy. The economy will be stimulated when people borrow more money from banks and spend it on goods and services in the economy. This will happen when interest rates are lower. Therefore expansionary monetary policy will mainly involve lower interest rates. Contractionary policy refers to measures aimed at decreasing borrowing and spending in the economy.

This will happen when interest rates are increased. Because contractionary policy decreases spending in the economy, it becomes more difficult for producers and retailers to increase the prices of goods and services that they sell. Therefore, higher interest rates will contribute to bringing down prices and the inflation rate. You will learn more about this later.

By law South African banks always have to hold 2,5% of all their deposits in cash reserves with the SARB. They also have to hold cash for transaction purposes. Very often, banks do not have enough cash reserves available. When this happens we say that the banks experience a *liquidity deficit*. When the banks experience a liquidity deficit they can then borrow cash from the SARB. We say that the SARB accommodates the banks. The SARB provides the cash to the banks but the banks have to pay interest at the level of the repo rate. Decisions concerning the level of the repo rate are called *accommodation policy*.

When the repo rate changes, banks will also change the interest rate at which their clients can borrow from them and the interest rate that they pay on deposits. All other interest rates will also change in the same direction as that of the change in the repo rate. The interest rate level which determines the money supply that we discussed in sections 2.6 and sections 2.7 above is determined by the level of the repo rate. When the repo rate increases, the general interest rate level will also increase and when the repo rate is decreased, the general interest rate level will also decrease.

Make sure you understand the current monetary policy framework of the SARB. You will see that the operational variable is the level of short-term interest rates, which is affected by the level of the repo rate. The repo rate is really the only tool which the SARB has available to reach its intermediate objective of keeping the inflation rate within the pre-announced target range.

To ensure that banks borrow from the SARB (and thus ensure that the banks' interest rate level remains linked to the repo rate), the SARB has to make sure that the banks always have a need for cash. The SARB uses *open market policy* to influence the amount of cash that banks need. Open market policy means that the SARB sells certain financial instruments to the banks in order to influence the size of the liquidity deficit of the bank. The banks will buy these because over and above the 2,5% cash reserves that banks have to hold, they also have to hold 5% in certain liquid financial instruments. When the banks buy these financial instruments, they pay for it in cash. When cash flows to the SARB, the amount of cash that banks hold decreases, and they may therefore have to borrow cash from the SARB at the repo rate.

Sometimes, as part of open market policy, it may also happen that the SARB will buy liquid financial instruments from the banks. Cash will then flow to the banks. This will happen at times when banks need lots of cash, for example at the end of the month. When banks have more cash available, it also means that they can provide more loans to their clients. This may stimulate the public to borrow more and spend more, and in this way, open market policy may also be used to stimulate the economy.

You should be able to define monetary policy and distinguish between the different measures that can be used by the Reserve Bank. Pay particular attention to accommodation policy and open-market policy. Make sure that you are able to explain how an increase or a decrease in the repo rate will influence the money supply or money stock.

ACTIVITY 2.8

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	In South Africa, monetary policy is formulated and implemented by the SARB which is the country's monetary authority.		
(2)	The use of open-market policy and accommodation policy are classified as market-oriented monetary policy measures.		
(3)	An increase in the rate of value-added tax from 14 to 15 per cent can be classified as a market-oriented monetary policy measure.		
(4)	The rate at which the SARB grants accommodation to the banks is called the repo rate.		
(5)	Changes in the repo rate are part of the SARB's accommodation policy.		
(6)	If the SARB wishes to apply a contractionary monetary policy, it can raise the repo rate.		
(7)	When the price of bonds increases, the market rate of interest also increases.		
(8)	There is an inverse relationship between the price of bonds and the market interest rate.		
(9)	An increase in the supply of bonds will raise the price of bonds and lower the interest rate.		

Short questions

(a) Define monetary policy and name any three instruments of monetary policy. (5)

(b) *Define the repo rate and explain how it can be used as a contractionary monetary policy instrument. (Note that you will be much better equipped to answer this question when you have completed Learning Unit 8). (6)

(d) *Define accommodation policy and explain how it should be applied if the central bank wishes to stimulate economic activity. (Note that you will be much better equipped to answer this question when you have completed Learning Unit 8). (6)

(e) Explain what an open-market policy means. (3)

(f) Explain briefly how an open-market policy can be used to stimulate economic activity in the economy.

(3)

Section 14.9 and Appendix 14-1of the prescribed book are not prescribed for this module.

SOLUTIONS

ACTIVITY 2.1

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) T
(4) T
(5) F
(6) T
(7) T
(8) F

ACTIVITY 2.2

TRUE/FALSE STATEMENTS

(1) F
(2) T

ACTIVITY 2.3

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) T
(4) T

ACTIVITY 2.4

TRUE/FALSE STATEMENTS

(1) T
(2) T

ACTIVITY 2.6

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) T
(4) T
(5) F
(6) T
(7) T
(8) F
(9) F
(10) T
(11) T
(12) T

SHORT QUESTIONS

(f) All that is required here is a reproduction of figure 14-1 in the prescribed book accompanied by a short written explanation. You should mention that the total demand for money consists of the demand for active balances, which depends on the income level (not the interest rate), and the demand for passive balances, which is inversely related to the interest rate. Proceed by providing two fully annotated diagrams (as in figure 14-1).

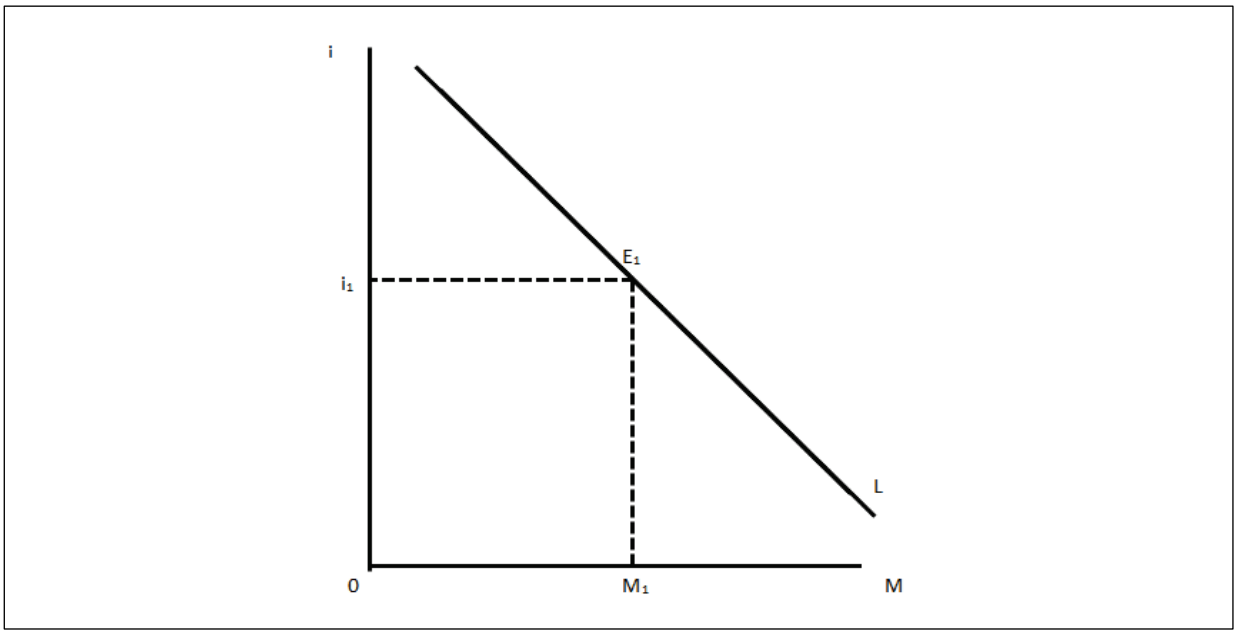
ACTIVITY 2.7

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) T
(4) T
(5) T

SHORT QUESTIONS

(c) Use the following diagram to explain how the quanity of money is determined given the current interest rate level i_1:



The money stock is determined by the interaction of the demand for money (L) and the current interest rate level (i_1).

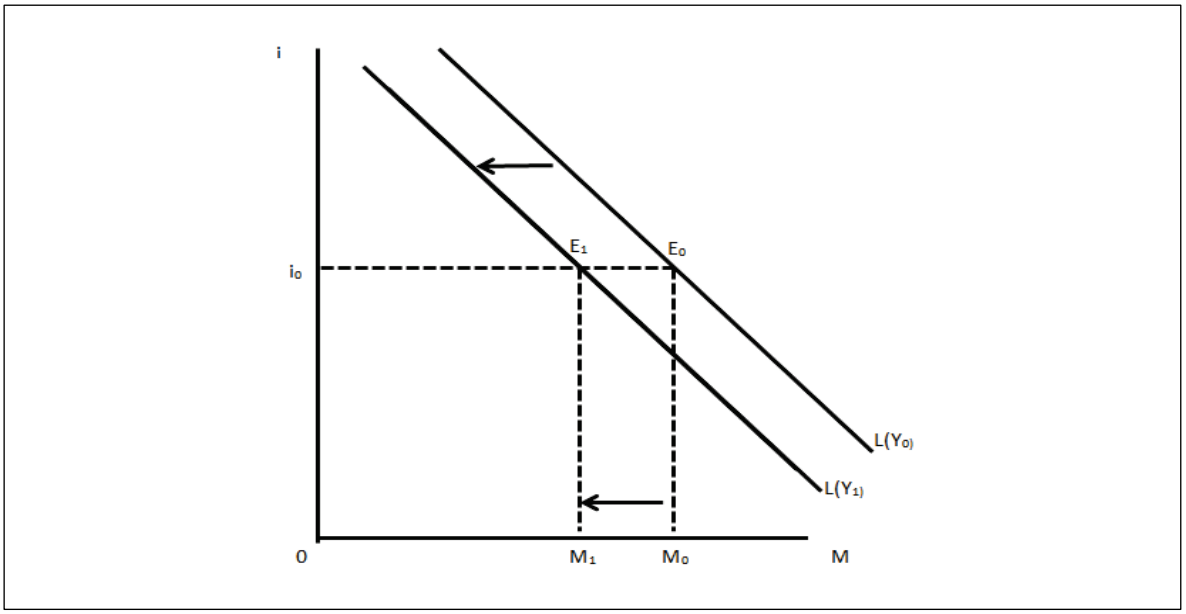
The interest rate level is determined by the level of the repo rate. The level of the repo rate is determined by the decisions of the Monetary Policy Committee of the SARB.

The demand for money (L) depends on the demand for active balances at the current income level and the demand for passive balances at every interest rate.

At the current interest rate level (i_1), the amount of money demanded is M_1.

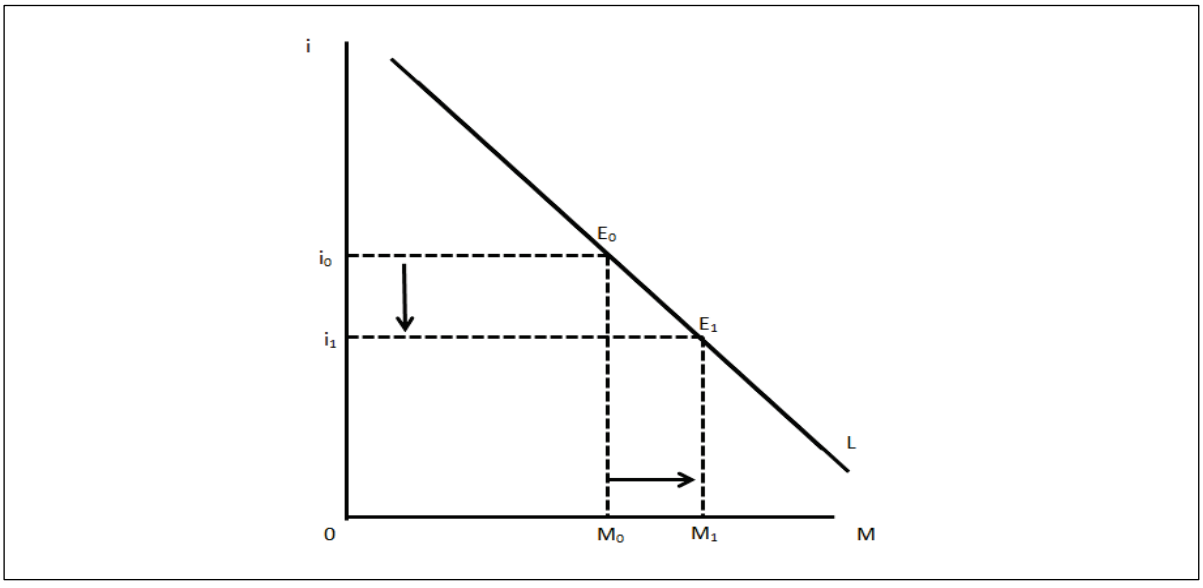
The money supply or money stock is equal to the amount of money that people wish to hold given the current income level and the current interest rate level, therefore the money stock is equal to M_1 at the current interest rate level of i_1.

(d) The following diagram shows how the stock of money changes if the level of income in the economy decreases:



A decrease in the income level decreases the demand for active balances. Therefore, the money demand curve L shifts to the left from $L(Y_0)$ to $L(Y_1)$. At the current interest rate level (i_0) the amount of money demanded decreases, therefore money stock decreases from M_0 to M_1.

(e) The following diagram shows how the stock of money changes if the interest rate decreases:



When the interest rate decreases from i_0 to i_1, the amount of money demanded for passive balances increases from M_0 to M_1. The banks will supply the additional cash balances required and therefore the money stock increases from M_0 to M_1.

ACTIVITY 2.8

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) F
(4) T
(5) T
(6) T
(7) F
(8) T
(9) F

Short questions

(b) The repo rate is the rate at which the SARB lends money to the banks to finance their liquidity deficit. When the repo rate is increased, banks also increase the interest rate at which they lend money to their clients. At the higher interest rate level, people will borrow less and therefore spending in the economy will decrease. It will be more difficult for producers and retailers to increase prices when there is less demand for their goods and services. Therefore, the price level in the economy should stop increasing.

(d) Accommodation policy is when the central bank lends cash to the banks to finance their cash deficit at the repo rate. When the central bank wishes to stimulate the economy, it will decrease the repo rate. Banks will then decrease the interest rate at which they lend money to clients. When it is cheaper to borrow, people and businesses in the economy will be able to borrow more and therefore spend more on goods and services. This will stimulate the economy.

CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
list the functions of money				
define money				
list the properties of money				
list the functions of the SARB				
define the demand for money				
identify the motives for holding money and the main determinant of each				
define monetary policy				
define the repo rate				
Explanations				
I am able to				
explain the difference between M1, M2 and M3				
differentiate between money, income and wealth				
explain why credit cards are not seen as money				
explain the basic function of a financial intermediary				
explain a demand-determined money stock				
Diagrams				
I am able to **(i) show on a diagram** **(ii) explain with or without the aid of a diagram**				
the demand for money – figure 14-1				
the effect of a change in income on the demand for money – figure 14-1				
the effect of a change in the interest rate on the demand for money – figure 14-1				
the stock of money – figure 14-2				
the effect of a change in income on the quantity of money – figure 14-2				
the effect of a change in interest rate on the quantity of money – figure 14-2				

The public sector

3

LEARNING UNIT

In this learning unit, we will investigate the different aspects of the public or government sector's role in the economy, particularly the level and composition of government spending, the financing of government spending, taxation and fiscal policy.

OUTCOMES

After you have worked through this learning unit, you should be able to

- explain briefly why government is involved in economic activity
- explain how government intervenes in the economy
- discuss government failure
- discuss nationalisation and privatisation
- explain how government spending can be financed
- explain the criteria for a good tax
- discuss the various types of taxes
- define and explain fiscal policy

CONTENTS

3.1 Role of government in the economy: an overview

STUDY

Sections 15.1 and 15.2 of the prescribed book

In chapter 2 of the prescribed book, we suggested that nowadays all economies can be classified as mixed economies in which the government, the private sector and market forces all play an important role. The appropriate mix of markets and government intervention is investigated in this section. The question is: do we need government intervention in the market economy? To answer this question, we need to remember that in the market economy, commodities are neither produced nor consumed instantaneously. This leads to the need to enforce contracts to work, pay or to supply at future dates. Hence, government intervention is required in order to enforce rules about contracts and private ownership of property.

In some instances, market prices fail to reflect the true social costs and benefits of resource use, leading to the phenomenon of *market failure*. As a result of market failure, government may be required in order to ensure that efficient outcomes are produced in the economy. Therefore, government intervention is justified in the market economy.

The role of government in the economy can be summarised by distinguishing between three broad functions of government:

- the allocative function, which refers to the role of government in correcting market failure and achieving a more efficient allocation of resources.

- the distribution function, which refers to the steps government takes to achieve a more equitable or socially acceptable distribution of income than that generated by market forces.

- the stabilisation function, which refers to the measures government takes to promote macroeconomic stability (for example, full employment, price stability and balance-of-payments stability).

ACTIVITY 3.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	General government consists of central, provincial and local government.		
(2)	Adam Smith argued for extensive government intervention in the economy because of market failure.		
(3)	The existence of externalities prevents the attainment of a socially efficient allocation of resources in the economy.		
(4)	Market systems tend to generate unequal distributions of personal income.		
(5)	The allocation function of government refers to actions by government to promote an efficient allocation of resources in the economy.		
(6)	The stabilisation function of government refers to measures taken to promote political stability in the country.		

Short question

(a) Give two reasons for government intervention in the economy. (2)

Sections 15.3 and 15.4 of the prescribed book are not prescribed for this module.

3.2 How does government intervene?

STUDY

Section 15.5 of the prescribed book

We now turn to the question of how government intervenes. You should be able to discuss the different options available to government. The main options that government can use in its intervention are as follows: government spending, transfer payments, and provision of pubic goods and services. Government may also act as a market participant by becoming an employer to factors of production or a purchaser of goods and services in the goods market.

ACTIVITY 3.2

Short question

(a) Discuss the instruments available to government to achieve its objectives. (10)

3.3 Government failure

STUDY

Section 15.6 of the prescribed book

Contrary to popular belief, governments can also fail. In this section, we examine some of the forms of government failure. Generally, government failure is a consequence of the behavior of politicians, bureaucrats and special interest groups. In this view, the argument is that politicians are election candidates that are motivated by self-interest. Hence, in their quest to maximise votes or to retain office, government failure may arise. Bureaucrats are appointed budget maximising officials who carry out administrative or technical duties for government departments. Compared to private sector employees, bureaucrats tend to be less conscious of the costs that are associated to their departments. The naivety of bureaucrats may consequently result in government failure. Special interest groups labour on behalf of the members that they represent. In the quest to influence politicians and legislation, the behavior of special interest groups may lead to *economic rent*, which is another source of government failure.

ACTIVITY 3.3

Indicate whether the following statement is **true** (T) or **false** (F):

Note: The answer is provided at the end of this learning unit.

T	F

(1) Government failure arises when politicians, bureaucrats and other interest groups put their own interests before those of society as a whole.

Short question

(a) Discuss the different forms of government failure. (8)

3.4 Nationalisation and privatisation

STUDY

Section 15.7 of the prescribed book

In this section, the desirability of nationalisation compared to privatisation is investigated. Ensure that you are familiar with the arguments for and against each.

ACTIVITY 3.4

Indicate whether the following statement is **true** (T) or **false** (F):

Note: The answer is provided at the end of this learning unit.

T	F

(1) Privatisation could improve efficiency, but it might have an adverse impact on employment.

Short questions

(a) Distinguish between nationalisation and privatisation, and give a practical example of each. (4)

(b) Briefly discuss the arguments for and against nationalisation and privatisation. (8)

3.5 Fiscal policy and the budget

STUDY

Section 15.8 of the prescribed book

This section introduces fiscal policy, one of the most important types of economic policy, which is analysed in part IV of the prescribed book. You should be able to define fiscal policy and distinguish between fiscal policy and monetary policy. Note also the meanings of demand management, expansionary (or stimulatory) policy and restrictive (or contractionary) policy. It is also important to note that the two main instruments of fiscal policy are government spending and taxes. If government aims to execute expansionary fiscal policy, it may choose to either increase government spending or to reduce taxes. However, with contractionary fiscal policy, government may either decrease government spending or increase taxes.

ACTIVITY 3.5

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The annual budget sets out the joint fiscal and monetary policy of the government and the SARB for the coming financial year.		
(2)	Changes in taxes and government expenditure represent fiscal policy decisions.		
(3)	Government could use the budget to try to influence variables such as total production, income and employment and to redistribute income in the economy.		
(4)	Government should implement restrictive fiscal policy measures during a recession.		

Short questions

(a) Define fiscal policy. (5)

(b) What is the main instrument and variables of fiscal policy. (5)

(c) Distinguish clearly between fiscal policy and monetary policy. (4)

(d) Suppose the government wishes to stimulate economic expansionary monetary and fiscal policy. Name one monetary policy step and one fiscal policy step that can be taken. (2)

3.6 Government spending

STUDY

Section 15.9 of the prescribed book

Note how government spending has increased in South Africa. You should be able to explain the causes of this trend. Also, note the changes in the composition of government spending.

ACTIVITY 3.6

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Government spending in South Africa consists largely of spending on capital goods (that is, investment spending).		
(2)	Changes in the level and composition of government spending sometimes reflect changes in social priorities but could also be the result of the influence of powerful special interest groups.		
(3)	Political shocks and other major disturbances could exert strong upward pressure on government spending.		
(4)	Excessive or unrealistic expectations about what government can deliver (for example, in the form of improved education, health and housing) could exert upward pressure on real government spending.		
(5)	Both a rapidly growing population and a high rate of urbanisation tend to exert upward pressure on government spending.		

Short question

(a) Give four reasons for the growth in government spending in South Africa since 1960. (4)

3.7 Financing of government spending

STUDY

Section 15.10 of the prescribed book

Study the different ways in which government spending can be financed. Government may choose to finance its spending through income from property, taxes or borrowing. This explains why there are some properties or even enterprises that are owned by government. Taxation, which is normally made up of sales tax and income tax, is the main source of government finance. In some cases, government may source its finance from borrowing from internal financial institutions or from other institutions outside the country. Note how public debt and the interest on public debt have increased (the latter to a point where almost 20 cents out of each rand of tax revenue are used to finance the interest payments).

ACTIVITY 3.7

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The budget deficit (or surplus) is the difference between government spending and current revenue (mainly taxes).		
(2)	The budget deficit is usually financed through taxation.		
(3)	If government finances part of its spending by borrowing from the central bank, this is called inflationary financing.		
(4)	A budget surplus occurs when government purchases of goods and services exceed the tax revenue it has received.		

Short questions

(a) Identify the three broad ways in which government spending can be financed. (3)

(b) Define the budget deficit. (2)

3.8 Taxation

STUDY

Section 15.11 of the prescribed book

- **Criteria for a good tax**

Study the three criteria for a good tax. These criteria are neutrality, equity and administrative simplicity. A good tax should cause minimal distortions in the allocation of resources so as to avoid discouragement of labour employment that could result if higher marginal rates of personal income tax are applied. In addition, a good tax should have a low cost of administration and a low compliance cost. By ensuring administrative simplicity, this will assist tax administration in not being too wasteful or resulting in unnecessarily large compliance cost to the tax payer.

- **Different types of tax**

You should be able to distinguish between direct taxes and indirect taxes and give examples of each. You should also be able to distinguish between progressive, proportional and regressive taxes and provide examples of each.

- **Taxation in South Africa**

The main taxes in South Africa are personal income tax, company tax and VAT. Note how the overall tax burden and the personal income tax burden have increased in South Africa in recent decades.

ACTIVITY 3.8

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Taxes that distort relative prices inhibit the functioning of the market mechanism and are not neutral.		
(2)	Taxes should always be aimed at changing the economic behaviour of taxpayers.		
(3)	An admission fee at a public swimming pool is an example of user charging.		
(4)	Tax avoidance refers to the practice of using illegal ways of avoiding taxes.		
(5)	Tax evasion is illegal.		
(6)	Direct taxes are levied directly on goods and services.		
(7)	A tax is progressive if lower income groups pay a smaller percentage of their taxable income in the form of tax than higher income groups pay.		
(8)	A tax is regressive if it takes a greater percentage of the taxable income of lower income groups than of higher income groups.		
(9)	The South African government raises most of its tax revenue through personal income tax and value-added tax.		
(10)	Company tax is the most important source of tax revenue in South Africa.		
(11)	The marginal tax rate is the rate at which every additional rand is taxed (for example, in the case of personal income tax).		
(12)	Personal income tax in South Africa is a progressive tax.		
(13)	Company tax in South Africa is an example of a proportional tax.		
(14)	Value-added tax is a regressive tax.		

Short questions

(a) List the three basic criteria for a good tax. (3)

(b) Explain the difference between direct taxes and indirect taxes, and give an example of each. (4)

(c) Explain the difference between progressive and regressive taxes, and give an example of each. (4)

(d) Explain the difference between a marginal tax rate and an average tax rate (in respect of personal income tax). (2)

Section 15.12 of the prescribed book is not prescribed for this module.

SOLUTIONS

ACTIVITY 3.1

TRUE/FALSE STATEMENTS

(1) T
(2) F
(3) T
(4) T
(5) T
(6) F

ACTIVITY 3.3

TRUE/FALSE STATEMENTS

(1) T

ACTIVITY 3.4

TRUE/FALSE STATEMENTS

(1) T

ACTIVITY 3.5

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) T
(4) F

ACTIVITY 3.6

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) T
(4) T
(5) T

ACTIVITY 3.7

TRUE/FALSE STATEMENTS

(1) T
(2) F
(3) T
(4) F

ACTIVITY 3.8

TRUE/FALSE STATEMENTS

(1) T
(2) F
(3) T
(4) F
(5) T
(6) F
(7) T
(8) T
(9) T
(10) F
(11) T
(12) T
(13) T
(14) T

CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
define fiscal policy				
name the variables of fiscal policy				
Explanations				
I am able to				
explain briefly why government is involved in economic activity				
explain how government intervenes in the economy				
explain government failure				
explain nationalisation and privatisation				
explain how government spending can be financed				
explain the criteria for a goods tax				
explain the difference between				
- direct and indirect taxes				
- progressive, proportional and regressive taxes				

The foreign sector 4

LEARNING UNIT

In this study unit, we will investigate the interaction between the foreign sector and the domestic economy. We will focus on the reasons for international trade, the main components of the balance of payments, and the exchange rate.

OUTCOMES

After you have worked through this learning unit, you should be able to

- explain the concepts of "absolute advantage" and "relative advantage"
- distinguish between the current account and the financial account of the balance of payments
- explain the meaning and significance of South Africa's gold and other foreign reserves
- explain the exchange rate between the United States dollar and the South African rand as well as any changes that might occur
- explain an appreciation or depreciation of the rand against the dollar (and vice versa)

CONTENTS

4.1 Why countries trade

STUDY

Sections 16.1 and 16.2 of the prescribed book

In this section we turn our attention to one of the oldest theories in Economics. Comparative advantages and not absolute advantages form the basis for trade, which allows countries to consume a combination of goods that exceeds its production possibility curve. Comparative advantage demonstrates that a country that has the least opportunity costs in production of a particular good relative to its trade partners should specialise in production of that good. In order to determine comparative advantage, you need to be able to calculate relative costs, which reflect opportunity costs of production.

ACTIVITY 4.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) The more open a country's economy is, the more vulnerable it is to changes in economic conditions in other countries.		
(2) A country is said to have an open economy if a significant percentage of GDP is exported and a significant part of domestic spending is on imported goods and services.		
(3) Adam Smith argued that countries should try to be as self-sufficient as possible.		
(4) One of the basic reasons for international trade is that not all countries have the same factors of production (for example, natural resources).		
(5) South African citizens would be better off economically if the country did not engage in international trade at all.		
(6) The law of relative (or comparative) advantage states that two countries will benefit from trade if the opportunity costs of production (or relative prices) differ between the two countries.		
(7) Absolute advantage is a prerequisite for trade.		
(8) Equal advantage is a prerequisite for trade.		
(9) Comparative (or relative) advantage is a prerequisite for trade.		

Statements (10) to (15) are based on the following information: Susan can knit four jerseys or sew eight dresses per week, while Jackie can knit three jerseys or sew four dresses per week.

(10) Susan has an absolute advantage in knitting jerseys.		
(11) Susan has an absolute advantage in sewing dresses.		
(12) Susan has a relative (or comparative) advantage in knitting jerseys.		
(13) Susan has a relative (or comparative) advantage in sewing dresses.		
(14) Jackie has a relative (or comparative) advantage in knitting jerseys.		
(15) Jackie should specialise in knitting jerseys while Susan should specialise in sewing dresses.		
(16) If country A can produce 2 400 tractors or 3 million tons of maize per year and country B can produce 1 500 tractors or 3 million tons of maize per year, then A should specialise in producing tractors, while B should specialise in producing maize.		

Short question

(a) Use the following information to illustrate the law of comparative advantage:

	Guns	Roses
Country A	20	80
Country B	10	20

(6)

Section 16.3 of the prescribed book is not prescribed for this module.

4.2 The balance of payments

STUDY

Section 13.6 of the prescribed book

The balance of payments is dealt with in section 13.6 of the prescribed book. You have to be able to distinguish between the current account and the financial account of the balance of payments.

ACTIVITY 4.2

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	All economic activities taking place within the borders of a country are recorded in the balance of payments.		
(2)	The balance of payments is a summary record of a country's transactions with the rest of the world during a particular period.		
(3)	The flow of goods between South Africa and the rest of the world is recorded in the current account of the South African balance of payments, while the flow of services is recorded in the financial account.		
(4)	A deficit on the current account of the balance of payments indicates that the country exported more than it imported during the period in question.		
(5)	When a German company invests in a vehicle manufacturing operation in South Africa, the amount concerned is entered as an inflow in the financial account of the South African balance of payments.		
(6)	If exports exceed imports, then g r o s s domestic product (GDP) is greater than gross domestic expenditure (GDE).		
(7)	A country can afford to run current account deficits as long as they are matched by financial account surpluses.		
(8)	The SARB holds a portion of South Africa's gold production as part of the country's foreign reserves.		

Short questions

(a) Define the balance of payments. (2)

(b) What are the two main sub-accounts of the balance of payments and what type of transaction is recorded in each sub-account? (4)

(c) What is the difference between the current account and the financial account of the balance of payments? (2)

4.3 Exchange rates

STUDY

Section 16.4 of the prescribed book

Table 16-1: Changes in supply and demand: a summary

Table 16-2: Impact of changes in rand/dollar exchange rate for South Africa

This section, which explains exchange rates, must be studied in detail. Note that an exchange rate is a price – like the price of any other commodity – and that the determination of exchange rates is simply an application of the microeconomic theory of demand and supply, explained in chapters 4 and 5. You should be able to explain the exchange rate between the United States dollar and the South African rand, as well as possible changes in this exchange rate. You should also be able to distinguish between an appreciation and a depreciation of the rand against the dollar. Note that the SARB's ability to intervene in the foreign exchange market depends on the availability of foreign exchange reserves.

ACTIVITY 4.3

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Exports create a supply of foreign exchange, while imports constitute a demand for foreign exchange.		
(2)	An exchange rate is the price of one currency in terms of another currency.		
(3)	An increase in South African imports from the United States will give rise to an appreciation of the rand against the US dollar.		
(4)	A fall in the value of the rand against the Japanese yen is described as a depreciation of the rand against the yen.		
(5)	One possible source of the demand for dollars in the South African foreign exchange market is American investors wishing to invest in South Africa.		
(6)	If American importers purchase more South African goods, the supply of dollars in the South African foreign exchange market increases.		
(7)	An increase in the supply of dollars in the South African foreign exchange market will result in an appreciation of the rand against the dollar.		
(8)	A depreciation of the rand against the US dollar will reduce the competitiveness of American goods and services in South Africa.		
(9)	If the demand for US dollars in the South African foreign exchange market falls, the rand will depreciate against the US dollar.		
(10)	If the rand appreciates against other currencies, South African exports will become more competitive.		
(11)	A depreciation of the rand against other currencies can be useful in the fight against inflation.		
(12)	A depreciation of the rand against other currencies will raise the prices of imported capital goods.		
(13)	If the SARB had the necessary foreign exchange reserves, it could intervene in the foreign exchange market to prevent sharp fluctuations in the exchange rates between the rand and other currencies.		

Short questions

Note: Solutions to the questions marked with an asterisk (*) are provided at the end of this learning unit.

(a) *Use a diagram to explain what would happen to the exchange rate between the rand and the US dollar if South African exports to the United States increased, ceteris paribus. (8)

(b) *With the aid of a diagram, explain what will happen to the exchange rate between the rand and the dollar when the demand for dollars increases. (6)

(c) Name two possible sources of
(i) the demand for dollars in South Africa
(ii) the supply of dollars in South Africa (4)

(d) Use a numerical example to distinguish between an appreciation and a depreciation of the rand against the dollar. (4)

(e) Explain the policy options available to stabilise a currency under a floating exchange rate system. (6)

4.4 Terms of trade

STUDY

Section 16.5 of the prescribed book

You should understand and be able to define what is meant by terms of trade. This section of the learning unit explains why export prices are important in the economy. Also, an understanding of the relevance of terms of trade in economic performance is crucial.

SOLUTIONS

ACTIVITY 4.1

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) F
(4) T
(5) F
(6) T
(7) F
(8) F
(9) T

Statements 10 to 15:

Susan has an absolute advantage in the knitting of jerseys **and** in the sewing of dresses. She can knit four jerseys per week compared to the three Jackie can knit, or sew eight dresses compared to Jackie's four. With absolute advantage, the question to ask is simply "who can produce more?".

However, with relative advantage, one would want to establish the opportunity cost of specialising in the production of a particular product. To knit one jersey per week Susan has to sacrifice two dresses, whereas Jackie sacrifices 1¼ dresses in order to produce one jersey. Jackie can knit jerseys "cheaper" and will specialise in the knitting of jerseys. Jackie has a relative advantage in the knitting of jerseys. On the other hand, to sew one dress Susan has to sacrifice ½ a jersey, while Jackie must sacrifice ¾ of a jersey. Susan can sew dresses "cheaper" and will specialise in the sewing of dresses. Susan has a relative advantage in the sewing of dresses.

(10) T
(11) T
(12) F
(13) T
(14) T
(15) T
(16) T To produce one unit of maize country A must sacrifice 800 (that is 2 400 ÷ 3) tractors, while country B must sacrifice 500 (1 500 ÷ 3) tractors. Country B can produce maize "cheaper" and will specialise in the production of maize. Country B has a relative advantage in the production of maize.

To produce one tractor, Country A has to sacrifice 3 / 2 400 (in other words 3 ÷ 2 400) units of maize whereas Country B must sacrifice 3 / 1 500 (that is 3 ÷ 1 500) units of maize in order to produce a tractor. Country A can produce tractors "cheaper" and will specialise in the production of tractors. Country A has a relative advantage in the production of tractors.

ACTIVITY 4.2

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) F
(4) F
(5) T
(6) T
(7) T
(8) T

ACTIVITY 4.3

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) F
(4) T
(5) F
(6) T
(7) T
(8) T
(9) F
(10) F
(11) F
(12) T
(13) T

SHORT QUESTIONS

(a) You must start with a diagram similar to the one in figure 16-4 in the prescribed book. Make sure that you label the axes and curves correctly and show the equilibrium exchange rate. An increase in South African exports to the USA will result in an increase in the supply of dollars. This is illustrated by a rightward shift of the supply curve in the diagram. Obtain a new equilibrium exchange rate that will be at a lower dollar price than before. This means that the dollar has depreciated against the rand or that the rand has appreciated against the dollar. The marks will again be split between the diagram and the accompanying explanation. In a question like this, the important requirements are (i) a correct initial diagram with correct labels, (ii) the correct shifting of the appropriate curve and (iii) correct conclusions drawn from the analysis.

Make sure that you can use diagrams to obtain all the results summarised in table 16-2 in the prescribed book.

(b) This question is similar to the previous one but a little easier, since you are informed that the demand for dollars has increased. This increase is illustrated by a rightward shift of the demand curve. The equilibrium price of the dollar increases, indicating an appreciation of the dollar against the rand (or a depreciation of the rand against the dollar).

CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
define absolute advantage				
define comparative advantage				
list the main sources of comparative advantage				
distinguish between the current account and the financial account of the balance of payments				
define the exchange rate				
list the sources for the demand for dollar in South Africa				
list the sources for the supply of dollar in South Africa				
define the terms of trade				
Explanations				
I am able to				
explain the law of comparative advantage				
explain the exchange rate between the United States dollar and the South African rand				
explain an appreciation or depreciation of the rand against the dollar				
explain the impact of changes in the rand/dollar exchange rate – table 16-1				
Diagrams				
I am able to **(i) show on a diagram** **(ii) explain with or without the aid of a diagram**				
the impact of changes in the demand or supply of dollars on				
the South African forex market – table 16-1; figure 16-4				
Calculations				
I am able to				
determine comparative advantage by calculating opportunity cost				
use an numerical example to distinguish between an appreciation and depreciation of the rand against the dollar				

Measuring the performance of the economy

5

LEARNING UNIT

Every four years soccer teams from all over the world gather to determine the best soccer team. Every nation wants to boast that their soccer team is the winner of the World Cup, in other words, the best soccer team in the world. But how does one compare the performances of the economies of the world? What criteria should be used? In this study unit, we are going to take a closer look at how the performance of an economy can be measured.

OUTCOMES

After you have worked through this learning unit, you should be able to

- explain the standard macroeconomic objectives
- explain the various criteria, concepts and techniques which are used to assess the performance of an economy

CONTENTS

5.1 Macroeconomic objectives

STUDY

Section 13.1 of the prescribed book

Five macroeconomic objectives are discussed in this section. These objectives serve as criteria for assessing the performance of the economy. Study the section to ensure that you know what each objective or criterion means.

ACTIVITY 5.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) The five macroeconomic objectives serve as criteria for judging the performance of the economy.		
(2) One of the macroeconomic objectives is that no price in the economy will increase.		
(3) The objective of price stability means that the inflation rate should be kept as low as possible.		

Short question

(a) List the five macroeconomic objectives which serve as criteria for measuring the performance of the economy and explain briefly what each objective means. (10)

5.2 Measuring the level of economic activity: gross domestic product

STUDY

Section 13.2 of the prescribed book

Box 13-1 of the prescribed book

Box 13-2 of the prescribed book

Gross Domestic product (GDP), which serves as the basis for calculating economic growth, is one of the central concepts in economics. Study the section, and pay particular attention to the components of the GDP definition and the three methods for calculating GDP. Also, make sure that you understand the difference between valuation at factor cost, basic prices and market prices, and that you can distinguish between current prices and constant prices (or nominal values and real values). Economic growth is usually measured as the percentage change in GDP at constant prices (that is, real GDP).

ACTIVITY 5.2

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The basic information about the performance of the economy is recorded in the national accounts.		
(2)	The central concept in the national accounts is the gross domestic product (GDP).		
(3)	The owner of a hardware shop purchases 20 axes from a wholesaler. The axes sold by the wholesaler are not classified as final goods.		
(4)	Peter Modise purchases an axe from a hardware store to chop down a tree in his garden. The axe sold by the hardware store is classified as a final good.		
(5)	Anna Gumbu spends R10,00 on the ingredients required to bake a chocolate cake. She bakes the cake and sells it for R20,00 at a morning market. The value added in this example amounts to R10,00.		
(6)	The flour used in a bakery to bake bread and the flour used by Helen Rantho to bake bread for her family are both classified as intermediate goods.		
(7)	The compilers of the national accounts can avoid double counting by recording only every second transaction in the economy.		
(8)	To avoid double counting in the national accounts, only sales of final goods and services (expenditure method) or the value added during different stages of the production process (production method) should be taken into account.		
(9)	According to the income method, GDP is estimated by adding up the income earned by the various factors of production.		
(10)	The GDP in a particular country in a particular year is a stock concept.		
(11)	The value of computers manufactured in South Africa by a Japanese firm does not form part of the South African GDP.		
(12)	The wages earned by a citizen of Lesotho working at a South African gold mine form part of the South African GDP.		
(13)	A farmer buys his neighbour's tractor. The value of this transaction is included in GDP.		
(14)	GDP at factor cost includes value-added tax (VAT).		
(15)	As a result of VAT and other taxes on products being greater than subsidies on products, GDP at market prices is greater than GDP at basic prices in South Africa.		
(16)	GDP at current prices is synonymous with real GDP.		
(17)	To measure real economic growth, GDP at current prices has to be transformed into GDP at constant prices.		
(18)	During inflationary periods, the growth in real GDP is always higher than the growth in nominal GDP.		

Short questions

Note: The solutions to the questions marked with an asterisk (*) are provided at the end of this learning unit.

(a) Define the gross domestic product (GDP) and explain the meaning of the various elements of the definition. (6)

(b) Explain how double counting can be avoided when GDP is estimated. (4)

(c) Use examples to explain the difference between final goods and intermediate goods. (4)

(d) Name the three methods used to estimate GDP. (3)

(e) Is GDP a stock or a flow? Explain. (3)

(f) Explain the difference between measurement at market prices, basic prices and factor cost. (4)

(g) Explain the difference between measurement at current prices and measurement at constant prices. (4)

(h) Explain the difference between nominal GDP and real GDP. (2)

(i) *The table below shows the GDP at current prices of country A for years 1 and 2.

Year	GDP at current prices
1	100
2	110

Given the information in the table, explain why it is impossible to tell whether the 10% increase in GDP from year 1 to year 2 represents economic growth. (6)

(j) *Use the information in the following table to calculate the increase in real GDP between 2001 and 2003.

Year	Nominal GDP	Real GDP
2001	280	280
2002	315	260
2003	305	300

(2)

5.3 Other measures of production, income and expenditure

STUDY

Section 13.3 of the prescribed book

This section contains definitions and explanations of a number of other national accounting concepts. You must be able to distinguish between gross national income (GNI), GDP and gross domestic expenditure (GDE).

ACTIVITY 5.3

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Income earned by Zimbabwean citizens working in South Africa forms part of the South African GDP and the Zimbabwean GNP.		
(2)	In South Africa, GDP has always been smaller than GNI.		
(3)	Part of consumption spending (C) in South Africa is on imported goods.		
(4)	Part of government spending (G) in South Africa is on imported goods.		
(5)	Imports are included in GDE.		
(6)	Imports are included in GDP.		
(7)	Exports are not included in GDE.		

Short questions

(a) Explain the difference between GDP and GNI. (3)

(b) Explain the difference between gross product and net product. (2)

(c) What is gross domestic expenditure (GDE) and how does it differ from expenditure on GDP? (4)

5.4 Measuring employment and unemployment

STUDY

Section 13.4 of the prescribed book

This is a short section on the measurement of employment and unemployment. Note that employment and unemployment are quite difficult to measure in practice. We will revisit this section when we deal with various aspects of employment and unemployment in greater detail in learning unit 10.

ACTIVITY 5.4

Short question

(a) Define the unemployment rate. (2)

5.5 Measuring prices: the consumer price index

STUDY

Section 13.5 of the prescribed book

Box 13-5 of the prescribed book

This section deals with the measurement of inflation. Inflation is usually measured by calculating the rate of change in the consumer price index (CPI). You must be able to define the CPI and to use it in order to calculate changes in the purchasing power of money.

ACTIVITY 5.5

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

T	F

(1) The consumer price index (CPI) and the inflation rate are the same thing.
(2) The CPI is an index of the cost of a representative basket of goods and services, and serves as a basis for calculating the inflation rate.
(3) The CPI is an index of the cost of living.

Short questions

(a) Differentiate between nominal and real values. (2)

(b) Describe the CPI. (3)

(c) What are the main elements of the CPI? (4)

5.6 Measuring the links with the rest of the world: balance of payments

STUDY

Section 13.6 of the prescribed book

This section deals with the balance of payments, which you have dealt with in learning unit 4.

ACTIVITY 5.6

Short questions

(a) What is the balance of payments? (2)

(b) Distinguish between the current account and the financial account of the balance of payments. (4)

5.7 Measuring inequality: distribution of income

STUDY

Section 13.7 of the prescribed book

South Africa has one of the most unequal distributions of income in the world. This section deals with the measurement of inequality. Note the three measures that are used to measure inequality. How the inequality can be addressed remains one of the most challenging questions facing South Africa.

ACTIVITY 5.7

Short question

(a) Name the three measures that are used to measure inequality. (3)

SOLUTIONS

ACTIVITY 5.1

TRUE/FALSE STATEMENTS

(1) T
(2) F
(3) T

ACTIVITY 5.2

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) T
(4) T
(5) T
(6) F
(7) F
(8) T
(9) T
(10) F
(11) F
(12) T
(13) F
(14) F
(15) T
(16) F
(17) T
(18) F

SHORT QUESTIONS

(i) When we measure economic growth, we want to establish whether more goods and services were produced. An increase in GDP at current prices could be a result of increases in the general price level, without any increase in production, for example the following:

Year	General price level	Number of goods produced	Nominal GDP (P x Q)
1	10	10	100
2	11	10	110

Alternatively, an increase in GDP at current prices could be the result of an increase in production:

Year	General price level	Number of goods produced	Nominal GDP (P x Q)
1	10	10	100
2	10	11	110

A combination of changes in the general price level and changes in the production level can also lead to an increase in the GDP at current prices:

Year	General price level	Number of goods produced	Nominal GDP (P x Q)
1	10	10	100
2	22	5	110

(j) $$\%\Delta\ in\ GDP = \frac{300-280}{280} x \frac{100}{1}$$
$$= \frac{20}{280} x \frac{100}{1}$$
$$= 7{,}14\%$$

ACTIVITY 5.3

TRUE/FALSE STATEMENTS

(1) T
(2) F
(3) T
(4) T
(5) T
(6) F
(7) T

ACTIVITY 5.5

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) T

CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
list the five macroeconomic objectives				
define the GDP				
name the three methods to estimate GDP				
define the unemployment rate				
define the CPI				
define the balance of payments				
name the three measures that are used to measure income inequality				
Explanations				
I am able to explain the difference between				
- nominal and real values				
- market prices, basic prices and factor cost				
- current prices, nominal prices and constant prices				
- gross product and net product				
- GDP and GDE				
Calculations				
I am able to calculate				
- the change in real and nominal GDP				
- the change in purchasing power				

Income determination in a simple Keynesian macroeconomic model

6

LEARNING UNIT

In learning unit 1, we saw how the different role players in the economy are related. In learning unit 5, the importance of economic growth to improve unemployment was emphasised. Now we need to investigate how the different role players in the economy can work together to increase economic growth. In this learning unit, we will build a model of the economy. In so doing, we will use the views of Keynes to explain how the equilibrium level of income is determined in an economy without a government and a foreign sector. The important role played by the multiplier (which indicates by how much the equilibrium level of income will change if spending changes) will also be examined.

OUTCOMES

After you have worked through this learning unit, you should be able to

- explain the relationship between the three central macroeconomic flows
- list the basic assumptions of the Keynesian macroeconomic model
- explain (with or without the aid of a diagram) the three important characteristics of the consumption function
- explain the relationship between consumption and saving
- explain, with the aid of a diagram, the equilibrium level of income
- read from a given diagram the level of autonomous spending, the marginal propensity to consume and the equilibrium level of income
- calculate
  - private consumption expenditure
  - the level of autonomous spending
  - the multiplier
  - the equilibrium level of income

CONTENTS

This chapter in the prescribed book lays the foundation for macroeconomic analysis and is the most important chapter in this module. The first part of the chapter (sections 17.1 to 17.4) explains the basic elements of macroeconomic theory and in the second part (sections 17.5 to 17.8), the various elements are combined to construct a simple Keynesian model of income determination in a closed economy without a government.

6.1 Production, income and spending

STUDY

Section 17.1 of the prescribed book

Box 17-1 of the prescribed book

This section is concerned with the three central flows in the economy (production, income and spending) which were introduced in learning unit 1. Note the distinction between the national accounts, which are concerned with the measurement of total production, income and spending in the economy, and macroeconomic theory, which is concerned with the explanation of these flows. Pay particular attention to the equilibrium condition. Make sure that you understand the three possible relationships between spending, production and income. Also, note the difference between the Keynesian approach, which focuses on aggregate spending, and Say's law, according to which supply creates its own demand.

You need to take note of the synonyms for total production, total income and total spending in the economy as discussed in box 17-1 – otherwise you might be confused when they are used.

Watch Clip 6.1, available under Additional Resources on MyUnisa

ACTIVITY 6.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) In macroeconomics, we use the symbol *Y* to denote total income and production in the economy, while the symbol *A* denotes total spending in the economy.		
(2) In macroeconomic theory, the symbol *Y* is the theoretical equivalent of national accounts aggregates such as GDP and GNI.		
(3) In macroeconomic theory, spending is always equal to production or income.		
(4) Macroeconomic theory uses the information of the national accounts; hence, production, income and spending must, as in the national accounts, always be equal in theory.		
(5) According to John Maynard Keynes, total spending (or aggregate demand) determines total production and income in the economy.		
(6) According to Say's law, goods and services will only be produced if there is a demand for them.		
(7) According to Say, aggregate (total) demand in the economy can never be insufficient because supply creates its own demand.		
(8) The full-employment level of production (or income) is the level of production (or income) at which all the factors of production are fully employed.		
(9) In the Keynesian model, there will always be an automatic tendency towards full employment if the economy is operating at a level of production or income below the full-employment level.		

Short questions

(a) Indicate how the relationships between the three main flows in the economy in macro- economic theory differ from those in the national accounts. (7)
(b) What is the basic difference between the national accounts and macroeconomic theory? (4)
(c) Contrast the views of Jean-Baptiste Say and John Maynard Keynes on the relationship between total income and total spending in the economy. (4)

6.2 The basic assumptions of the model

STUDY

Section 17.2 of the prescribed book

Box 17-2 of the prescribed book

The basic assumptions of the Keynesian model are explained in this section. Study this section carefully, including box 17-2. We start with a simple model of an economy that does not include a government sector or a foreign sector. The reason is that we can then focus on certain important concepts without being confused by too many details. Once the foundation has been laid, the simplifying assumptions can be relaxed.

Watch Clip 6.2 and Clip Box 17-2, available under Additional Resources on MyUnisa

ACTIVITY 6.2

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) In the Keynesian macroeconomic model of this chapter, prices, wages and interest rates are regarded as exogenous variables, in other words, assumed to be given.		
(2) In macroeconomic theory, the symbol I is used to indicate the total flow of funds through financial institutions.		
(3) Macroeconomic theory deals with events that occurred in the past.		

Short question

(a) Give four of the basic assumptions of the Keynesian macroeconomic model of an economy without a government and a foreign sector. (4)

6.3 Consumption spending

STUDY

Section 17.3 of the prescribed book

Box 17-4 of the prescribed book

Aggregate spending on goods and services *A* (or the aggregate demand for goods and services) is the driving force in the Keynesian model. The largest component of aggregate spending is consumption spending by households *C*, which is introduced in this section. The important points to note are as follows:

- the direct (or positive) relationship between consumption spending *C* and income *Y*
- the difference between autonomous consumption C and induced consumption *cY*
- the meaning of the marginal propensity to consume *c*

Make sure that you can express the consumption function both graphically and as an equation, and that you know what the different elements of the graph and the equation signify. Box 17-4 introduces saving *S* and explains how *S* is related to *Y* (and *C*).

Watch Clip 6.3 and Clip Box 17.4, available under Additional Resources on MyUnisa

ACTIVITY 6.3

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The marginal propensity to consume is indicated by *c* and equals $\Delta C/\Delta Y$, which indicates the slope of the consumption function.		
(2)	Induced consumption refers to the fixed part of consumption spending which does not change as the level of income changes.		
(3)	The intercept of the consumption function reflects the influence of the non-income determinants of consumption spending.		
(4)	Consumption spending can exceed income because households can use savings from a previous period to finance such spending.		
(5)	If the marginal propensity to consume is 0,75, then at an income level (Y) of 100, the level of induced consumption is 75.		
(6)	If C = 80 and c = 0,8, then C = 880 at an income level of 1 000.		
(7)	If $C = 100 + 0{,}7Y$, then $S = -100 - 0{,}7Y$.		

Short questions

(a) Explain, with the aid of a diagram, the economic significance of the intercept and the slope of the consumption function. (3)

(b) Explain, with the aid of a diagram, the three important characteristics of the consumption function. (6)

(c) Explain, with the aid of a diagram, the difference between autonomous consumption and induced consumption. Refer to the meaning of the marginal propensity to consume. (6)

(d) Use diagrams or equations to explain the relationship between consumption and saving. (4)

6.4 Investment spending

STUDY

Section 17.4 of the prescribed book

Box 17-5 of the prescribed book

This section introduces investment spending (I) which is related to capital goods (not to financial assets). Make sure that you know what investment (also called capital formation) means. Note that investment is not related to changes in total production or income Y (that is, it is regarded as autonomous with respect to Y).

Watch Clip 6.4, available under Additional Resources on MyUnisa

ACTIVITY 6.4

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Investment is negatively (inversely) related to the interest rate.		
(2)	Investment spending is less volatile than consumption spending because it takes a long time to implement investment projects.		
(3)	If investment is independent of the income level, it is regarded as autonomous. It is illustrated graphically by a horizontal line.		
(4)	Income is the most important determinant of the level of investment.		

Short question

Note: The solution to the question is provided at the end of this learning unit.

(a) Use two diagrams to illustrate the relationship between
   (i) investment spending and the interest rate
   (ii) investment and the level of income in the economy. (4)

6.5 The simple Keynesian model of a closed economy without a government

STUDY

Section 17.5 of the prescribed book

Consumption spending *C* and investment spending *I* are combined with the 45° line to establish the equilibrium level of production and income in the economy. Study the subsection on the 45° line and make sure that you understand why this line represents all the possible equilibrium points where aggregate spending *A* is equal to total production or income *Y*. Also, make sure that you understand why any other combination of *A* and *Y* represents either excess demand or excess supply. The essential elements of the model are explained in words, symbols (or equations), numbers (or schedules) and graphs. Study this section carefully.

Watch Clip 6.5, available under Additional Resources on MyUnisa

ACTIVITY 6.5

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The 45° line shows all the possible equilibrium points in the Keynesian model.		
(2)	At any level of income below the equilibrium level Y_0 there is an excess supply of goods and services in the economy.		
(3)	If income exceeds spending, firms' inventories will decrease.		
(4)	If firms' inventories increase, they will cut back on production.		
(5)	The slope of the consumption function is an important determinant of the equilibrium level of income in Keynesian macroeconomic models.		
(6)	In an economy without a government and a foreign sector, the slope of the total spending (A) curve = the slope of the consumption function = $\Delta C/\Delta Y$ = c = marginal propensity to consume.		

Short questions

(a) Explain, with the aid of a diagram, the significance of the 45° line in the Keynesian macroeconomic model. What do points above and below the 45° line represent? (5)

(b) Explain, with the aid of a diagram, the equilibrium level of income in a Keynesian model without a government or a foreign sector. Clearly indicate the equilibrium level of income as well as the areas of excess demand and excess supply. (8)

6.6 Algebraic version of the simple Keynesian model of a closed economy without a government

STUDY

Section 17.6 of the prescribed book

Box 17-7 of the prescribed book

This section contains a more detailed algebraic version of the Keynesian model. You should try to master it, but if you cannot follow the argument, then concentrate on the results (that is, equations 17-6 and 17-6a). You will not be required to derive the results in the examination.

Box 17-7 contains a numerical example of the determination of the equilibrium level of income. Concentrate on the short method. You should be able to do the calculations.

Watch Clip 6.6, available under Additional Resources on MyUnisa

ACTIVITY 6.6

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) If C = R26 billion, the slope of the *C* curve = 0,8 and I = R10 billion, the equilibrium level of income (Y_0) in a closed economy without a government will be R180 billion.		
(2) If C = R10 billion, I = R30 billion and *c* = 0,75, then the equilibrium level of income will be R160 billion.		
(3) If C = 50, I = 100 and *c* = 0,6, then the equilibrium level of income is 375.		

Short question

Note: The solution to the question is provided at the end of this learning unit.

(a) Calculate the equilibrium level of income in an economy without a government and a foreign sector if

(i) C = R100 million, *c* = 0,875 and I = R150 million

(ii) C = R10 million, *c* = 0,75 and I = R40 million (3 marks each)

6.7 The multiplier

STUDY

Section 17.7 of the prescribed book

The multiplier, one of the central concepts in macroeconomics, is introduced in this section. The fact that it is quite a long section does not imply that the multiplier is a difficult concept. Because the multiplier is so important, it is explained in a number of different ways, again using words, symbols, numbers and graphs. You do not have to study all the derivations of the multiplier in detail with a view to reproducing them in the examination.

You should only make sure that you understand

- what the multiplier means
- how it can be calculated from the formula
- why its size depends on the marginal propensity to consume
- how it can be represented graphically

Watch Clip 6.7, available under Additional Resources on MyUnisa

ACTIVITY 6.7

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The multiplier indicates how much a change in autonomous spending will change the equilibrium level of income.		
(2)	If the marginal propensity to consume shows an increase, the equilibrium level of income will also increase.		
(3)	In an economy without a government and a foreign sector, the size of the multiplier is determined by the marginal propensity to consume.		
(4)	In an economy without a government and a foreign sector, a marginal propensity to consume of 0,8 will yield a multiplier of 1,25.		
(5)	If c = 0,8, then an increase of 200 in investment spending will increase the equilibrium level of income by 1 000.		
(6)	The equilibrium level of income can be obtained by multiplying the autonomous components of aggregate spending by the multiplier.		

Short questions

Note: Solutions to the questions marked with an asterisk (*) are provided at the end of this learning unit.

(a) Define the multiplier (in words) and give the equation for the multiplier in a simple Keynesian model of the economy. (4)

(b) Explain (in one sentence) the relationship between the equilibrium level of income, total autonomous spending and the multiplier. (2)

(c) *Use a diagram to explain how a decrease in investment spending will affect the equilibrium level of income in a simple Keynesian model. Comment on the relationship between the size of the change in investment spending and the size of the change in the equilibrium level of income. (8)

(d) *Calculate the multiplier in an economy without a government and a foreign sector if the marginal propensity to consume is (i) 0,75 (ii) 0,8 (iii) 0,875 (iv) 0,5 (2 marks each)

(e) *Suppose that autonomous consumption expenditure is R200 million, the marginal propensity to consume is 0,75 and autonomous investment spending is R400 million. Calculate the following:

(i) the multiplier
(ii) the equilibrium level of income

Show all your calculations. (4)

(f) *Calculate the impact of an increase in investment spending of R100 million in an economy without a government and a foreign sector if the marginal propensity to consume is (i) 0,75, (ii) 0,6, (iii) 0,9. (3 marks each)

6.8 The simple Keynesian model: a brief summary

STUDY

Section 17.8 of the prescribed book

Box 17-9 of the prescribed book

The main elements of the simple Keynesian model introduced in this chapter are summarised in this section.

Watch Clip 6.8 and Clip Box 17.9, available under Additional Resources on MyUnisa

ACTIVITY 6.8

Short question

Note: The solution to the question is provided at the end of this learning unit.

(a) Let autonomous consumption ($\bar{C}$) = 10. At equilibrium, consumption spending = 70 and investment spending = 20. Calculate
   (i) the slope of the aggregate spending curve
   (ii) the marginal propensity to consume
   (iii) the multiplier
   (Hint: Draw a diagram using the basic facts at your disposal.) (10)

SOLUTIONS

ACTIVITY 6.1

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) F
(4) F
(5) T
(6) F
(7) T
(8) T
(9) F

ACTIVITY 6.2

TRUE/FALSE STATEMENTS

(1) T
(2) F
(3) F

ACTIVITY 6.3

TRUE/FALSE STATEMENTS

(1) T
(2) F
(3) T
(4) T
(5) T $0{,}75x\frac{100}{1} = 75$
(6) T $c = c + cY$
$= 80 + 0{,}8(1000)$
$= 80 + 800$
$= 880$
(7) F $if\ C = C + cY$
$then\ S = \_C + (1 - c)Y$
$= \_100 + (1 - 0{,}7)Y$
$= \_100 + 0{,}3Y$

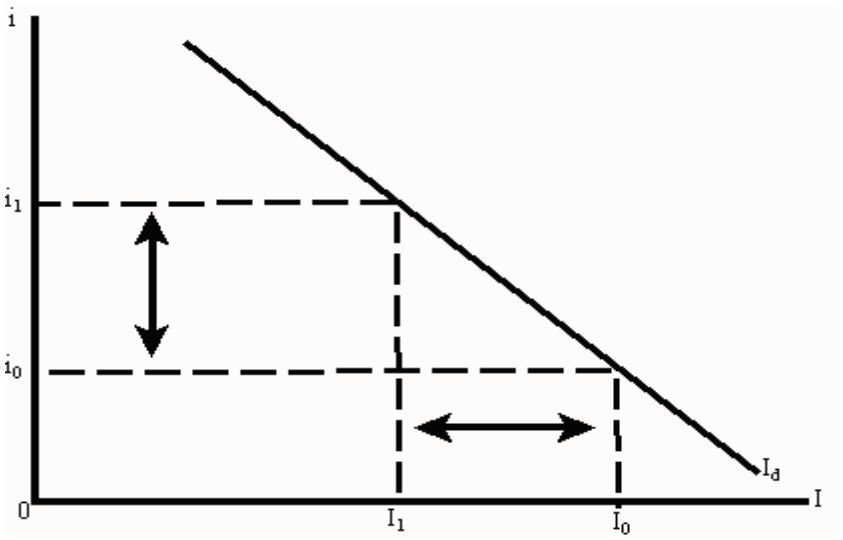
ACTIVITY 6.4

TRUE/FALSE STATEMENTS

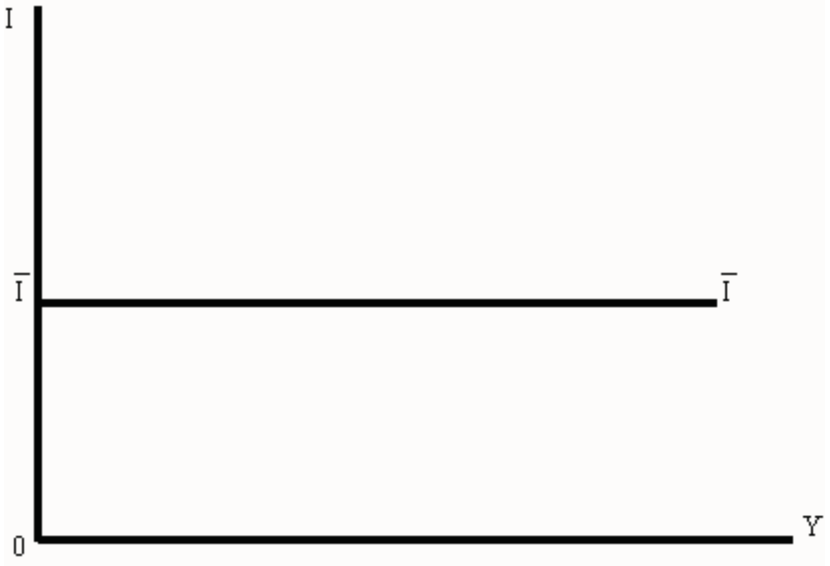
(1) T
(2) F
(3) T
(4) F

SHORT QUESTION

(a) (i) There is an inverse relation between the interest rate and the level of investment.



(ii) Investment spending is independent of the level of income.



ACTIVITY 6.5

TRUE/FALSE STATEMENTS

(1) T
(2) F
(3) F
(4) T
(5) T
(6) T

ACTIVITY 6.6

TRUE/FALSE STATEMENTS

(1) (T) C is R26 billion and the slope of the *C* curve is 0,8, thus the consumption function:

C = R26 billion + 0,8*Y* (recall that the marginal propensity to consume is represented by the slope of the *C* curve)

I = R10 billion

At equilibrium:

$$Y = A$$
$$\therefore Y = C + \bar{I}$$
$$\therefore Y = 26 + 0{,}8Y + 10$$
$$= 36 + 0{,}8\,Y$$
$$\therefore Y - 0{,}8Y = 36$$
$$\therefore 0{,}2Y = 36$$
$$\therefore \frac{0{,}2Y}{0{,}2} = \frac{36}{2{,}36}$$
$$\therefore Y = R180 \text{ billion}$$

Alternatively, you may use the following formula:

Equilibrium, or $Y_0 = \propto A$
where $\propto$ = the multiplier (see the next section)
and A = autonomous spending

Firstly, calculate the value of the multiplier:

$$\propto = \frac{1}{1-c}$$ *Where c is the marginal propensity to consume*

$$= \frac{1}{1-0,8}$$ *substitute c with 0,8 and subtract from 1*

$$= \frac{1}{0,2}$$

$$= 5$$

Autonomous spending:

$$\bar{A} = \bar{C} + \bar{I} = 36$$
$$\therefore Equillibrium\ Y_0 = 5x36 = R180\ billion$$

(2) (T) *C* = R10 billion + 0,75*Y*
I = R30 billion

At equilibrium:

$$Y = A$$
$$\therefore Y = C + \bar{I}$$
$$\therefore Y = 10 + 0,75Y + 30$$
$$= 10 + 0,75Y$$
$$\therefore Y - 0,75Y = 40$$
$$\therefore 0,25Y = 40$$
$$\therefore \frac{0,25Y}{0,25} = \frac{40}{0,25}$$
$$\therefore Y = R160\ billion$$

Alternatively, you may use the following formula:

Equilibrium, or $Y_0 = \alpha A$,
where α = the multiplier (see the next section)
and A = autonomous spending

Firstly, calculate the value of the multiplier:

$$\propto = \frac{1}{1-c}$$ Where c is the marginal propensity to consume

$$= \frac{1}{1-0,75}$$ substitute c with 0,75 and subtract from 1

$$= \frac{1}{0,25}$$

$$= 4$$

Autonomous spending:

$$\bar{A} = \bar{C} + \bar{I} = 40$$

∴Equilibrium Y_0 = 4 x 40 = R160 billion

(3) (T) C=50+0,6Y
I =100
At equilibrium:

$$Y = A$$

$$\therefore Y = 50 + 0{,}6Y + 100$$
$$= 150 + 0{,}6\,Y$$
$$\therefore Y - 0{,}6Y + 150$$
$$\therefore 0{,}4Y = 150$$
$$\therefore \frac{0{,}4Y}{0{,}4} Y = \frac{150}{0{,}4}$$
$$\therefore Y = 375$$

Alternatively, you may use the following formula:

Equilibrium, or Y_0 = α A,
where α = the multiplier (see the next section)
and A = autonomous spending

Firstly, calculate the value of the multiplier:

$$\propto = \frac{1}{1-c}$$ Where c is the marginal propensity to consume
$$= \frac{1}{1-0{,}6}$$ substitute c with 0,75 and subtract from 1
$$= \frac{1}{0{,}4}$$
$$= 2{,}5$$

Autonomous spending:

$$\bar{A} = \bar{C} + \bar{I} = 150$$
$$\therefore Equillibrium\, Y_0 = 2{,}5X150 = R375\ billion$$

SHORT QUESTION

(a) (i) *C* = R100 million + 0,875*Y*
I = R150 million

At equilibrium:

$$Y = A$$
$$\therefore Y = C + \bar{I}$$
$$\therefore Y = 100 + 0{,}875Y + 150$$
$$= 250 + 0{,}875Y$$
$$\therefore Y - 0{,}875 = 250$$
$$\therefore 0{,}125Y = 250$$
$$\therefore \frac{0{,}125Y}{0{,}125} = \frac{250}{0{,}125}$$
$$Y = R2\ 000m$$

Alternatively, you may use the following formula:

Equilibrium, or $Y_0 = \propto A$
where $\propto$ = the multiplier (see the next section)
and A = autonomous spending

Firstly, calculate the value of the multiplier:

$= \frac{1}{1-c}$ Where c is the marginal propensity to consume

$= \frac{1}{1-0{,}875}$ substitute c with 0,875 and subtract from 1

$= \frac{1}{0{,}125}$

$= 8$

Autonomous spending:

$$\bar{A} = \bar{C} + \bar{I} = 250$$

$$\therefore Equillibrium\ Y_0 = 8XR250\ million = R2\ 000\ million$$

(ii) *C* = R10 million + 0,75*Y*
I =R40 million

At equilibrium:

$$Y = A$$
$$\therefore Y = C + \bar{I}$$
$$\therefore Y = 10 + 0{,}75Y + 40$$
$$= 50 + 0{,}75Y$$
$$\therefore Y - 0{,}75Y = 50$$
$$\therefore \frac{0{,}25Y}{0{,}25} = \frac{50}{0{,}25}$$
$$Y = R2\ 00m$$

Alternatively:

$Y_0 = a\ AR2\ 00m$

The multiplier:

$a = \frac{1}{1-c}$ Where c is the marginal propensity to consume

$= \frac{1}{0-0,75}$ substitute c with 0,75 and subtract from 1

$= \frac{1}{0,25}$

$= 4$

Autonomous spending:

$\bar{A} = \bar{C} + \bar{I} = 50$

$\therefore Equillibrium\ Y_0 = 4XR50\ million = R2\ 00\ million$

ACTIVITY 6.7

(1) T

(2) T

(3) T

(4) F

$\propto = \frac{1}{1-c}$

$= \frac{1}{1-0,8}$ substitute c with 0,8 and subtract from 1

$= \frac{1}{0,2}$

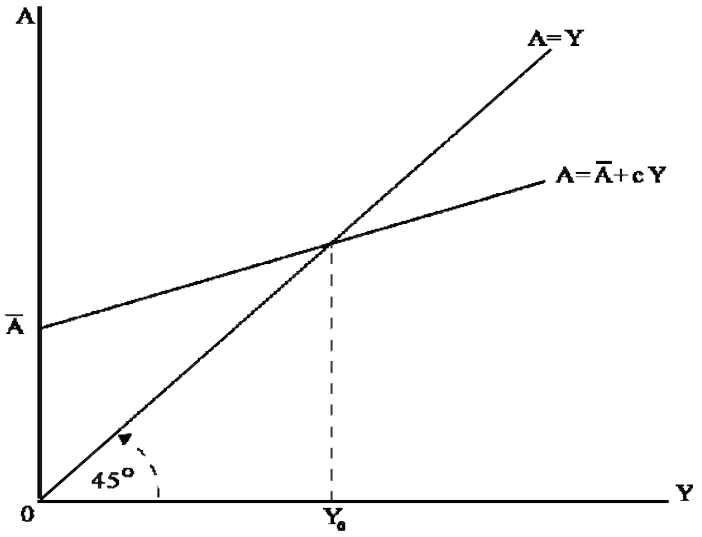
$= 5$

(5) T The change in income will be equal to the multiplier five times (calculated

(6) T above) the change in investment spending 200, that is, 5 x 200 = 1 000

SHORT QUESTIONS

(c) Here you must provide a diagram that will look similar to the one in figure 17-10, but in which the order of things is reversed. Start with a basic equilibrium diagram like the one below:



With a decrease in investment spending, the level of aggregate demand will **fall** at each level of income. This is illustrated by a parallel downward shift of the aggregate demand curve (for example, a shift from A_2 to A_1 in figure 17-10). The result is a fall in the equilibrium level of income. Why? Because, with aggregate spending (*A*) at each level of income (*Y*) being at a level lower than before, it stands to reason that point E in the diagram will no longer be an equilibrium point. There will now be excess supply at point E. Firms will experience an unplanned increase in inventories and will cut back on production. Thus, the equilibrium level of income will fall. Moreover, the decrease in income will be greater than the decrease in investment spending because of the multiplier effect (which works in reverse in this case).

(d) In each case, the formula for the simple multiplier has to be applied:

(i)

$$\propto = \frac{1}{1-c}$$
$$= \frac{1}{1-0,75} \qquad \text{substitute c with 0,75 and subtract from 1}$$
$$= \frac{1}{0,25}$$
$$= 4$$

(ii)

$$\propto = \frac{1}{1-c}$$
$$= \frac{1}{1-0,8} \quad \text{substitute c with 0,8 and subtract from 1}$$
$$= \frac{1}{0,25}$$
$$= 5$$

In the same way, the following answers can be obtained:

(iii) 8; (iv) 2.

Note how the size of the multiplier is directly related to the size of the marginal propensity to consume, that is, the larger the marginal propensity to consume, the larger the multiplier.

(e) *C* = R200m + 0,75*Y*
I = R400m

The multiplier (α)

$$\propto = \frac{1}{1-c}$$
$$= \frac{1}{1-0,75}$$
$$= \frac{1}{0,25}$$
$$= 4$$

Autonomous spending (A) = R200m + R400m = R600m
Thus $Y_0 = \alpha$ A = 4 x R600m = R2 400m

Alternatively, you could have started by stating that there is equilibrium where:

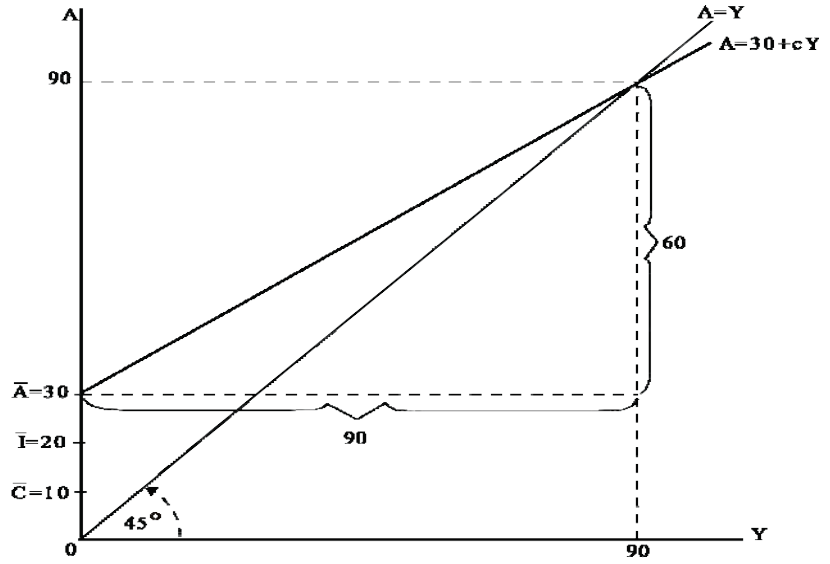
$$Y = A$$
$$\therefore Y = C + \bar{I}$$
$$\therefore Y = 200 + 0,75Y + 400$$
$$= 600 + 0,75Y$$
$$\therefore Y - 0,75Y = 600$$
$$\therefore \frac{0,25Y}{0,25} = \frac{600}{0,25}$$
$$Y = R2\ 400m$$

(f) To calculate the impact of a change in investment spending on total production or income in the economy, the change in *I* must be multiplied by the multiplier. Using the formula for the multiplier, as explained in the solution to question (d), the following multipliers are obtained: (i) 4; (ii) 2,5; (iii) 10. Multiplying each of these multipliers by the increase in *I* of R100 million yields the following increases in total production or income in the economy: (i) R400 million; (ii) R250 million; (iii) R1 000 million.

ACTIVITY 6.8

SHORT QUESTION

(a) As indicated in the question, it is useful to draw a diagram containing the basic information provided.



With C and I both given, the intercept of the aggregate spending curve (A) can be calculated as 30 (= C + I = 10 + 20). We can calculate the equilibrium level of income as follows:

$Y = A$
$= C + I$
$= 70 + 20$
$= 90$

(i) The problem is to calculate the slope of the aggregate spending curve (that is, the marginal propensity to consume). If $Y = 0$, then $A = 30$. If $Y = 90$, then $A = 90$. Thus, if Y changes by 90, then A changes by 60. The slope of the A curve (that is, c) is thus:

$$\therefore \frac{0{,}25Y}{0{,}25} = \frac{600}{0{,}25}$$

$$\frac{\Delta A}{\Delta Y} = \frac{90-30}{90-0} = \frac{60}{90} = \frac{2}{3} = 0{,}67$$

(ii) In this case, the marginal propensity to consume is, of course, the same as the slope of the aggregate spending curve = 0,67.

(iii)
$$\propto = \frac{1}{1-c}$$
$$= \frac{1}{1-0{,}67}$$
$$= \frac{1}{0{,}33}$$
$$= 3$$

CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
define Say's law				
list the basic assumptions of the Keynesian macroeconomic model				
define the multiplier				
Explanations				
I am able to				
explain the relationship between the three central macroeconomic flows				
explain the implications of the assumptions of the Keynesian macroeconomic model				
explain the relationship between consumption and saving				
Diagrams				
I am able to **(i) show on a diagram** **(ii) explain with or without the aid of a diagram**				
the three characteristics of the consumption function – figure 17-1				
the relationship between consumption and income – figure 17-2				
the relationship between investment and the interest rate – figure 17-3				
the relationship between investment and income – figure 17-4				
the equilibrium level of income – figure 17-7				
the level of autonomous spending, the marginal propensity to consume and the equilibrium level of income – figure 17-8				
the multiplier – figure 17-10				
Calculations				
I am able to calculate				
- private consumption expenditure				
- the level of autonomous spending				
- the marginal propensity to consume				
- the multiplier				
- the equilibrium level of income				

Keynesian models including the government and the foreign sector

7

LEARNING UNIT

In this learning unit, we will extend the model introduced in the previous learning unit. We will now include the government and the foreign sector. In so doing we will examine the impact of government spending, taxes, exports and imports on aggregate spending, the multiplier and the equilibrium level of income. The inclusion of the government allows us to introduce fiscal policy.

OUTCOMES

After you have worked through this learning unit, you should be able to

- explain the impact of the introduction of government spending on aggregate spending, the multiplier and the equilibrium level of income
- explain the difference between income and disposable income
- explain the impact of the introduction of a proportional income tax on
  - private consumption expenditure
  - autonomous spending
  - the multiplier
  - the equilibrium level of income
- explain, using a diagram, the impact of a change in government spending or a change in the tax rate on the equilibrium level of income
- explain, using a diagram, the impact of changes in autonomous exports and induced imports on the equilibrium level of income

CONTENTS

Although the chapter in the prescribed book is fairly long, only a few new concepts are introduced and incorporated into the macroeconomic model of chapter 17. Much of the chapter consists of a detailed explanation of how government spending (G), taxes (T), exports (X) and imports (Z) affect aggregate spending (A), the multiplier (α), and the equilibrium level of income (Y_0). Though numerical examples are used to highlight these effects, the numerical examples (that is calculations) in this chapter are not prescribed for this module.

7.1 Introducing the government into our model

STUDY

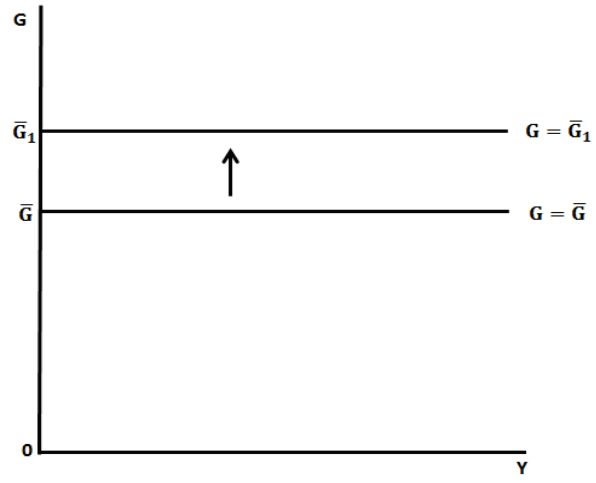
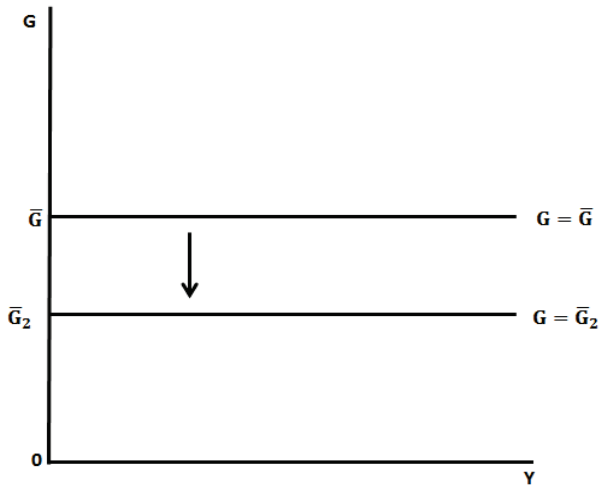
Section 18.1 of the prescribed book

- **Government spending**

This section starts by introducing government spending (*G*). Make sure you understand why *G* is regarded as autonomous, how it affects aggregate spending and the equilibrium level of income, and why it does not affect the multiplier.

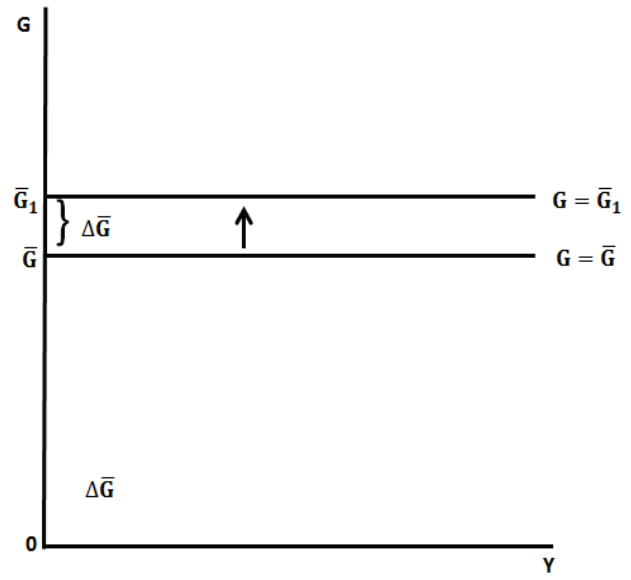
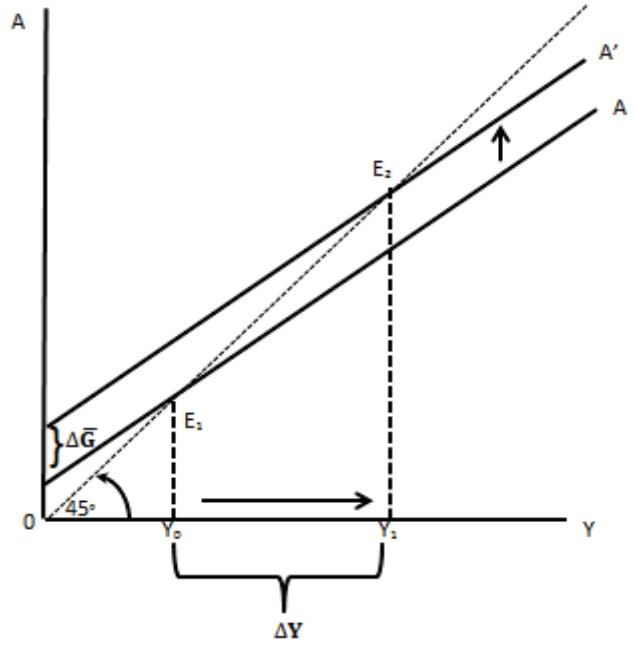
Figure 18-1 shows government spending in a diagram. On the vertical axis the level of government spending is shown and on the horizontal axis the total income level is shown. The fact that the government spending function (G) is horizontal illustrates that the level of government spending is not determined by the income level. The horizontal line above the symbol for government expenditure G, also indicates that government spending is not determined by the income level – we say it is autonomous.

What will happen when government spending increases? When government spending increases from $\overline{G}$ to $\overline{G}_1$, the government spending function will move upwards as shown in the diagram below, on the left. When government spending decreases $\overline{G}$ to $\overline{G}_2$, the government spending function will shift downwards, as shown in the diagram on the right. You have to make sure you understand why the G-function shifts up or down and that you will be able to illustrate it correctly.

Government spending increases	Government spending decreases
	

You also have to understand how an increase or a decrease in government expenditure will affect total aggregate spending. This is illustrated in the following figures. Make sure you understand that:

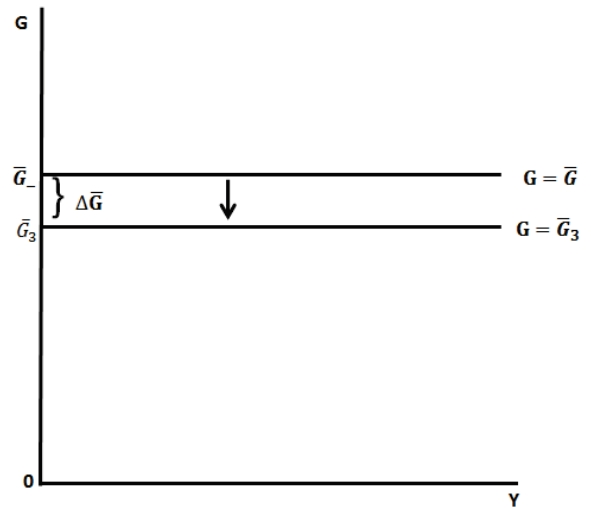
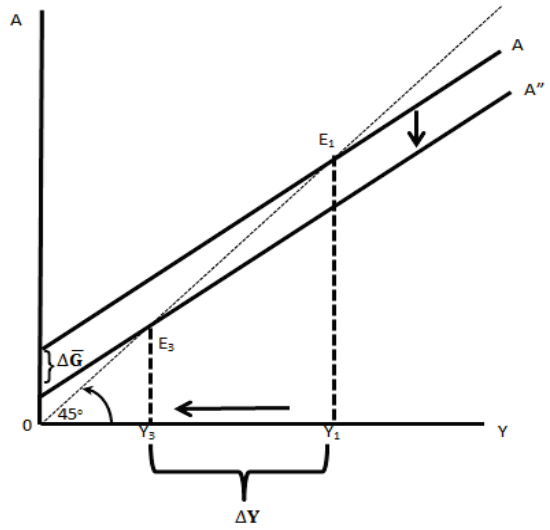
- An increase in government spending (ΔG) increases autonomous expenditure $\overline{A}$ by the same amount.
- Because autonomous expenditure increases, the aggregate expenditure function (A) will shift upwards to A' by the same amount of the increase in the government expenditure
- When aggregate expenditure increases, retailers and producers will start to experience a decrease in inventories. Therefore they will increase production. To increase production more factors of production are employed and therefore their income increases.
- Now a multiplier process starts: due to this increase in their income the induced consumption (C) of participants in the economy will increase. This increases aggregate expenditure once more, and therefore also production and income.
- The multiplier process will continue until the economy is in equilibrium again where aggregate expenditure and income are equal (at E_2 in the diagram). As you can see the increase in income (ΔY) is larger than the initial increase in government expenditure (ΔG) which set this process in motion. This is due to the multiplier effect.

Increase in government expenditure	**How an increase in G influence the income level in the Keynesian model**
	

Let us see what happens if there is a decrease in government expenditure (G):

- A decrease in government spending (ΔG) decreases autonomous expenditure $\overline{A}$ by the same amount.
- Because autonomous expenditure decreases, the aggregate expenditure function (A) will shift downwards to A" by the same amount of the decrease in the government expenditure

- When aggregate expenditure decreases, retailers and producers will start to experience an increase in inventories – they are not able to sell all their inventory. Therefore they will decrease production. When production is decreased, fewer factors of production are employed and therefore their income decreases.
- Now a multiplier process starts: due to this decrease in their income the induced consumption (C) of participants in the economy will decrease. This decreases aggregate expenditure once more, and therefore also production and income.
- The multiplier process will continue until the economy is in equilibrium again where aggregate expenditure and income are equal (at E_3 in the diagram below). As you can see the decrease in income (ΔY) is larger than the initial decrease in government expenditure (ΔG) which set this process in motion. This is due to the multiplier effect. The increase in the equilibrium income level is equal to the multiplier ($\propto$) times the change in government spending ($\Delta Y = \propto \Delta G$).

Decrease in government expenditure	**How a decrease in G influence the income level in the Keynesian model**
	

You have to be able to explain and illustrate the effect of a change in government expenditure on aggregate spending and income.

ACTIVITY 7.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	In the simple Keynesian model of an economy with a government sector, prices, wages and interest rates are regarded as given.		
(2)	The introduction of the government into the Keynesian model makes it possible to analyse the impact of monetary policy.		
(3)	Government spending increases as total income *Y* increases.		
(4)	Government spending is essentially a political issue, and the level of government spending is therefore not related systematically to any economic variable.		
(5)	The introduction of government spending increases the size of the multiplier.		
(6)	The introduction of government spending leaves the multiplier unchanged.		
(7)	The introduction of government spending increases the level of aggregate spending in the economy.		
(8)	Increases in government spending could be used to raise the level of total production and income in the economy.		
(9)	Government spending forms part of total autonomous spending A.		

Short questions

Note: The solution to the question marked with an asterisk (*) is provided at the end of this learning unit.

(a) Why is government spending classified as part of autonomous spending in the Keynesian model? (2)

(b) *In the Keynesian model, how does an increase in government spending affect

(i) aggregate spending
(ii) the multiplier? (4)

(c) *Use a diagram to illustrate the impact of an increase in government spending in a Keynesian model of an economy without a foreign sector, and comment on the size of the change in the equilibrium level of income relative to the change in government spending. (8)

- **Taxes**

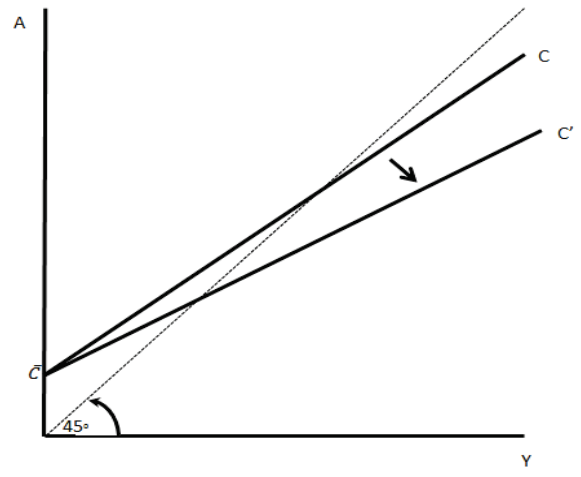
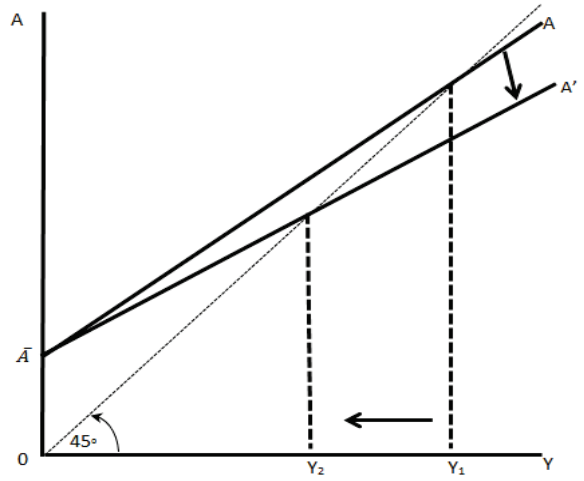
The next variable included in the model is taxes. Make sure that you understand what a proportional tax is (explained in chapter 15) and why we have to distinguish between income and disposable income once taxes are included in the model. You also have to be able to explain and illustrate the impact of taxes on aggregate spending, the multiplier and the equilibrium level of income.

Let us consider how an increase in taxes will influence the economy.

When the proportional tax rate (i.e. the percentage of income that is paid to tax) increases, the size of the multiplier will decrease. You have to be able to explain this.

The increase in taxes that have to be paid decreases the disposable income that is available to consumers. Therefore induced consumption will decrease. This is illustrated by a downward swivel of the consumption function (to C' in the diagram below) and therefore the aggregate spending function will also swivel downwards (to A'). Note that autonomous consumption ($\bar{C}$) and autonomous expenditure ($\bar{A}$) does not change. Therefore the C and A functions do not shift, they only swivel.

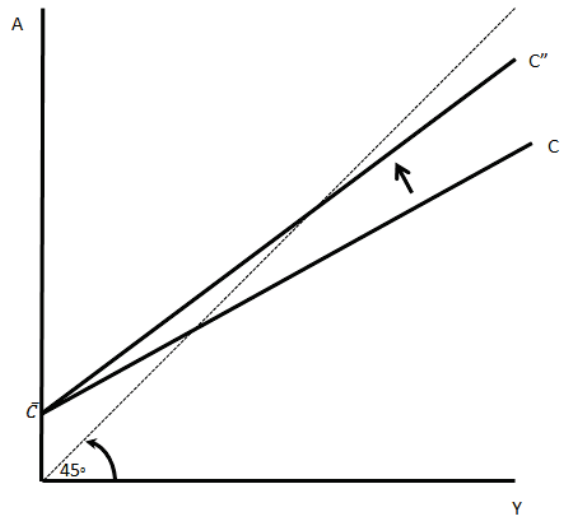
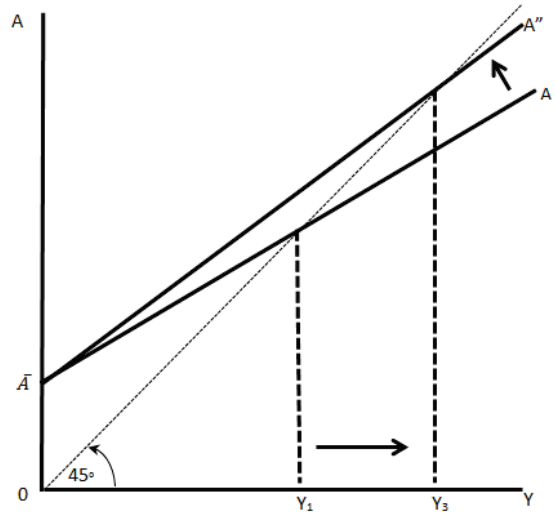
Because induced consumption decreases, aggregate spending decreases. This will result in an unplanned increase in inventories that producers and retailers have available, and therefore production will be decreased. When production is decreased fewer factors of production are employed and therefore income decreases. The decrease in income results in a further decrease in consumption, aggregate spending, production and income. This process will continue until aggregate spending is again equal to income at a lower income level (Y_2 in the diagram below).

Effect of an increase in the tax rate on consumption	Effect of an increase in the tax rate on aggregate spending and the equilibrium income level
	

When the proportional tax rate (i.e. the percentage of income that is paid to tax) decreases, the size of the multiplier will increase. You also have to be able to explain this.

The decrease in taxes that have to be paid increases the disposable income that is available to consumers. Therefore induced consumption will increase. This is illustrated by an upward swivel of the consumption function (to C" in the diagram below) and therefore the aggregate spending function will also swivel upwards (to A"). Note that autonomous consumption ($\bar{C}$) and autonomous expenditure ($\bar{A}$) does not change. Therefore the C and A functions do not shift, they only swivel.

Because induced consumption increases, aggregate spending increases. This will result in an unplanned decrease in inventories that producers and retailers have available, and therefore production will be increased. When production is increased more factors of production are employed and therefore income increases. The increase in income results in a further increase in consumption, aggregate spending, production and income. This process will continue until aggregate spending is again equal to income at a higher income level (Y_3 in the diagram below).

Effect of a decrease in the tax rate on consumption	Effect of a decrease in the tax rate on aggregate spending and the equilibrium income level
	

Make sure that you are able to explain how an increase or a decrease in the tax rate will influence the economy and that you can illustrate this using the Keynesian model.

ACTIVITY 7.2

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) When taxes are introduced in the Keynesian model we have to distinguish between total income and disposable income.		
(2) The introduction of a proportional income tax in the Keynesian model reduces the slope of both the consumption function and the total spending curve; as a result, the multiplier also becomes smaller.		
(3) Taxes form part of autonomous spending in the economy.		

Short questions

(a) Explain the difference between income Y and disposable income Y_d. (2)

(b) Explain, by means of the Keynesian model, how an increase in proportional income tax affects
   (i) autonomous spending
   (ii) aggregate spending
   (iii) the multiplier (5)

- **The equilibrium level of income in an economy with a government sector**

This subsection deals with the combined effect of government spending and taxes on the equilibrium level of income. We have seen government spending is an injection into the circular flow of spending and income. It raises the level of aggregate spending A at each level of income. Taxes on the other hand are a leakage from the circular flow. As taxes reduce disposable income, induced consumption is reduced and the size of the multiplier is therefore smaller.

- **Fiscal policy**

The introduction of government spending and taxation means that we can now analyse the impact of fiscal policy (which was originally defined in chapter 15). You must be able to explain and show how the equilibrium income level in the economy is affected by fiscal policy measures.

This has already been explained above when we explained the effects of changes in government expenditure (G) and changes in the tax rate. Make sure you are able to explain and illustrate the effect of each of the following on aggregate spending, the size of the multiplier and the equilibrium income level:

- An increase in government expenditure
- A decrease in government expenditure
- An increase in the proportional tax rate
- A decrease in the proportional tax rate

ACTIVITY 7.3

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

(1) Government can use fiscal policy (that is, a change in government spending and/or taxes) to change the equilibrium level of income.

(2) If government wishes to reduce the equilibrium level of income, it can reduce government spending or increase the tax rate.

(3) If the equilibrium level of income Y_0 is below the full-employment level of income Y_f, government spending should be increased by the required increase in income to close the gap.

T	F

Short questions

Note: Solutions to the questions are provided at the end of this learning unit.

(a) Define fiscal policy and explain how the equilibrium level of income can be raised through fiscal policy in a Keynesian model. (8)

(b) Suppose the equilibrium level of income is below the full-employment level of income and that government wants to eliminate the gap. Explain, with the aid of a diagram, how this can be achieved by changing the level of government spending. Also, comment on the size of the change in government spending which is required relative to the desired change in the level of income. (10)

7.2 Introducing the foreign sector into the model: the open economy

STUDY

Section 18.2 of the prescribed book

The model is now extended to include the foreign sector. South Africa has an open, developing economy. It is important to take note of the impact of the foreign sector on the level of production and income in the economy

- ### Exports

Exports are seen as autonomous, as there is no systematic relationship between income and exports. Exports depend mainly on economic conditions in the rest of the world, a country's international competitiveness and exchange rates. Exports are just added to the other expenditure components and do not affect the size of the multiplier.

- ### Autonomous imports

If we assume – to keep matters simple – that imports do not depend on income, we are able to treat autonomous imports like any autonomous expenditure component. The only difference is that, seeing that imports are a leakage from the circular flow of income and spending, it is subtracted from total expenditure. The size of the multiplier is not affected, however. The more realistic approach is to recognise that a positive relationship exists between imports and income.

- **Induced imports**

When the level of income in the domestic economy increases, it almost automatically leads to an increase in imports. The extent to which imports increase for a given increase in income depends on the marginal propensity to import, *m*. A smaller portion of any increase in income is spent locally; consequently, the size of the multiplier decreases.

Note: Except when otherwise stated, we will treat imports as a function of income in this module – in other words, all questions in the assignments and examination will refer to induced imports (including the impact of the marginal propensity to import on the multiplier).

ACTIVITY 7.4

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Exports *X* represent a withdrawal from the circular flow of income and spending in the domestic economy, since the goods concerned flow out of the country.		
(2)	Imports *Z* represent an injection into the circular flow of income and spending in the domestic economy since the goods flow into the country.		
(3)	Exports depend mainly on economic conditions in the rest of the world, a country's international competitiveness and exchange rates.		
(4)	There is no systematic relationship between the level of exports *X* and the level of domestic income *Y*; exports are therefore assumed to be autonomous with respect to total income *Y*.		
(5)	Exports do not affect the size of the multiplier.		
(6)	Imports have a negative sign in the equation for aggregate spending because they represent leakages or withdrawals from the circular flow of income and spending in the domestic economy.		
(7)	Imports, like taxes, are a leakage from the flow of income and spending, and therefore reduce the equilibrium level of income.		
(8)	Total production and income in the economy can be raised by increasing imports and decreasing exports.		
(9)	If net exports are negative, aggregate spending *A* will be lower at each level of income than before the introduction of the foreign sector.		

Short questions

Note: Solutions to the question marked with an asterisk (*) is provided at the end of this learning unit.

(a) State three possible determinants of the demand for South African exports and explain why exports are classified as part of autonomous spending in the Keynesian model. (5)

(b) *Use a diagram to illustrate the impact of an increase in exports on the equilibrium level of income in a Keynesian model of an economy with a government sector and a foreign sector, and comment on the size of the change in income relative to the size of the change in exports. (8)

7.3 Impact of the government and the foreign sector: a brief summary

STUDY

Section 18.3 of the prescribed book

Study the summary of the impact of the government and the foreign sector as provided in this section.

ACTIVITY 7.5

(1) *Show the effect of a decrease in proportional income tax on the equilibrium level of income in the Keynesian model of a closed economy.

SOLUTIONS

ACTIVITY 7.1

TRUE/FALSE STATEMENTS

(1) T
(2) F
(3) F
(4) T
(5) F
(6) T
(7) T
(8) T
(9) T

SHORT QUESTIONS

(b) (i) An increase in government spending increases autonomous spending by the same amount as the increase in government spending. It will also increase induced consumption, and therefore induced spending will also increase. The total increase in aggregate spending when equilibrium is reached again is therefore larger than the increase in government spending.

(ii) The size of the multiplier will not be affected by an increase in government spending.

(c) What is required here is a fully annotated diagram like the one in figure 18-6, along with a written explanation. The increase in income will be greater than the increase in government spending because of the multiplier effect. Note that you are required to present a model of a **closed** economy, which means that there are no exports or imports. In this case, you will be penalised by a mark or two if you do include exports and imports in your diagram.

ACTIVITY 7.2

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) F

SHORT QUESTIONS

(b) (i) An increase in the proportional income tax will not affect autonomous spending.

(ii) An increase in the proportional income tax will decrease disposable income. Therefore induced consumption will decrease and thus also induced aggregate spending. Because this decrease in induced aggregate spending will result in a decrease in production and thus a decrease in income, aggregate spending will decrease some more (thus the total decrease in aggregate spending is larger than the initial decrease in aggregate spending due to the increase in the tax rate, due to the multiplier effect.

(iii) The size of the multiplier will decrease. This is because after the increase in the proportional tax rate a smaller part of every rand is available for induced consumption.

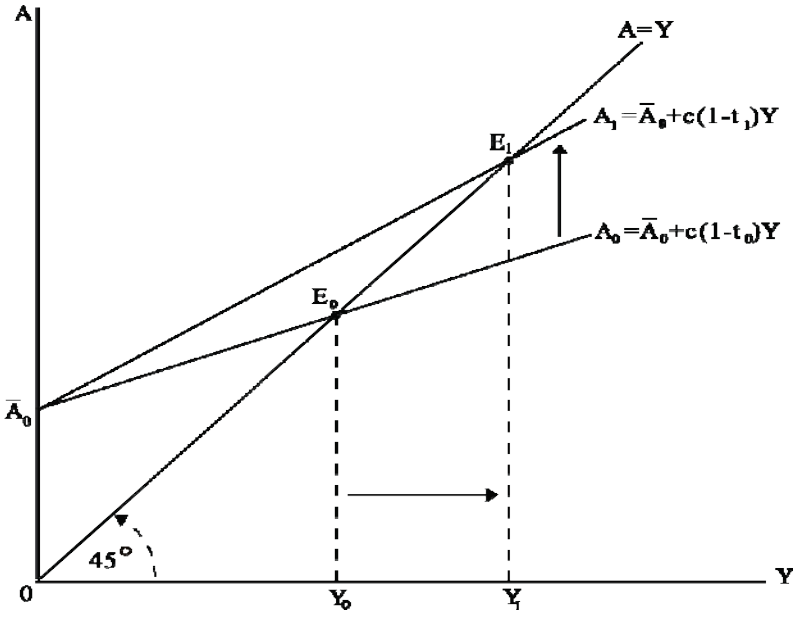
ACTIVITY 7.3

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) F

SHORT QUESTIONS

(a) Fiscal policy refers to the use of variables such as government spending (*G*) and taxes (*T*) to influence important macroeconomic variables such as total production or income in the economy. The rest of the question can be answered in words only or with the aid of diagrams. If possible, use diagrams. In this case, figure 18-6 is again applicable since an **increase** in **government spending** is one of the instruments of fiscal policy which can be used to raise the equilibrium level of income. Another possibility is to **lower the tax rate**. This will increase the level of disposable income at each level of income and therefore raise consumption spending at each level of income. A lower tax rate implies a larger multiplier. This can be illustrated by an increase in the slope of the aggregate spending curve:



Y_0 = original equilibrium level of income
Y_1 = new equilibrium level of income after the the tax rate has been lowered

(b) To answer this question you have to provide a diagram such as the one in figure 18-6 along with a written explanation. As explained in the solution to Activity 7.1 (c), the required increase in government spending will be equal to the gap between the equilibrium level of income (Y_o) and the full-employment level of income (Y_f) **divided** by the multiplier.

ACTIVITY 7.4

TRUE/FALSE STATEMENTS

(1) F
(2) F
(3) T
(4) T
(5) T
(6) T
(7) T
(8) F
(9) T

SHORT QUESTIONS

(b) The answer to this question is similar to the answer to activity 1(c). The only difference is that aggregate spending (A) now includes net exports ($X - Z$). You can use a figure that is similar to figure 18-6, but A_0 will now be $C + I + G + (X - Z)_0$ and A_1 will be $C + I + G + (X - Z)_1$, to indicate that the increase in aggregate spending (illustrated by an upward shift of the aggregate spending curve) is the result of an increase in exports ($X - Z$). Again, the resultant increase in the equilibrium level of income will be equal to the increase in exports multiplied by the multiplier.

ACTIVITY 7.5

1. See the following link for the discussion of the answer:
https://youtu.be/tT4oaIhtqXE

CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
define fiscal policy				
Explanations				
I am able to				
explain the impact of the introduction of government spending on aggregate spending, the multiplier and the equilibrium level of income				
explain the impact of the introduction of a proportional income tax on				
- private consumption expenditure				
- autonomous spending				
- the multiplier				
- the equilibrium level of income				
explain the difference between income and disposable income				
Diagrams				
I am able to **(i) show on a diagram** **(ii) explain with or without the aid of a diagram**				
the impact of the introduction of a proportional income tax on private consumption expenditure – figure 18-4				
the impact of a change in government spending or of a change in the tax rate on the equilibrium level of income – figures 18-5 and 18-6				
the impact of fiscal policy on the equilibrium level of income – figures 18-5 and 18-6				
the impact of changes in exports and imports on the equilibrium level of income – figures 18-8				

More on macroeconomic theory and policy

8

LEARNING UNIT

In chapter 14 of the prescribed book, we introduced monetary policy. However, we did not examine whether monetary variables influence economic activity. In this learning unit, we will show how aggregate demand and aggregate supply curves can be used to analyse the linkage between the monetary and real sectors of the economy.

OUTCOMES

After you have worked through this learning unit, you should be able to

- use aggregate demand (*AD*) and aggregate supply (*AS*) curves to analyse monetary and fiscal policies and supply shocks
- explain the monetary transmission mechanism
- explain the policy dilemma in an open economy

CONTENTS

8.1 The aggregate demand-aggregate supply model

STUDY

Section 19.1 of the prescribed book

Box 19-1 of the prescribed book

Table 19-1: Impact of key changes on the aggregate demand curve

Table 19-2: Impact of key changes on the aggregate supply curve

This is an important section which shows how aggregate demand (*AD*) and aggregate supply (*AS*) can be combined to analyse a variety of macroeconomic issues. This section should be studied in detail.

8.1.1 The aggregate demand curve

You have to be able to define the AD *curve*. Make sure you understand the difference between the *AD* curve and a microeconomic demand curve (that is, a demand curve for a specific good or service). The reasons why the AD curve slopes downward are explained under the heading "THE SLOPE OF THE AD CURVE" and summarised in Figure 19-2. You have to understand why a *decrease* in the price level will result in an *increase* in aggregate demand and thus aggregate spending, in the economy. You have to be able to explain

- the wealth effect of a change in the price level on aggregate demand
- the interest rate effect of a change in the price level on aggregate demand
- the international trade effect of a change in the price level on aggregate demand

Make sure you understand the relationships, i.e. which variables will increase and which will decrease. At the top of table 19-1 the effects of changes in the price level (which results in shifts of the AD curve) are also summarized.

You have to be able to draw an AD curve. You must know that the price level is shown on the vertical axis and the income level on the horizontal axis and know how to label the curve.

You also have to know the factors that will cause a *shift* of the *AD* curve. These are discussed under the heading "THE POSITION OF THE AD CURVE" and summarized under the line in Table 19-1. You will notice that any factor which causes an *upward* shift of the aggregate spending curve in the Keynesian model will cause an *increase* in aggregate demand and shift the AD curve to the *right.* Any factor which causes an *downward* shift of the aggregate spending curve in the Keynesian model will cause an *decrease* in aggregate demand and shift the AD curve to the *left.* You also have to be able to illustrate a shift of the AD curve correctly.

8.2.2 The aggregate supply curve

You also have to be able to define the *AS* curve. You also have to understand the difference between an *AS* curve and a microeconomic supply curve. You have to be able to explain why the short-run aggregate supply curve slopes upwards. This is explained under the heading "THE SLOPE OF THE SHORT RUN AS CURVE". You have to understand that movements along the AS curve will take place when the price level change (see top part of Table 19-2 for a summary of this).

You have to be able to draw an AS curve. You must know that the price level is shown on the vertical axis and the income level on the horizontal axis and know how to label the curve.

You also have to be able to explain the factors which can cause a shift of the *AS* curve. These are discussed under the heading "THE POSITION OF THE AS CURVE" and summarized in Table 19-2 below the line. You also have to be able to illustrate a shift of the AS curve correctly.

You also have to be able to explain why the long-run aggregate supply (LRAS) is vertical. This is illustrated under the heading “THE LONG-RUN AGGREGATE SUPPLY CURVE (LRAS)” and illustrated in figure 19-3.

Note that you should always assume that all references to the aggregrate supply or AS curve refer to the upward sloping short-run AS curve, unless it is specified that the long-run aggregate supply curve is the relevant curve.

8.2.3 Changes in aggregate demand and aggregate supply

The subsections on shifts in aggregate demand and shifts in aggregate supply require careful attention. You should be able to use the *AD-AS* model to explain the following:

- the trade-off between increased prices and increased employment
- the impact on the price level and total production (or income) in the economy of
  (a) expansionary monetary policy
  (b) expansionary fiscal policy
  (c) contractionary monetary policy
  (d) contractionary fiscal policy
- what stagflation is
- the impact on the price level and total production (or income) in the economy of a change in aggregate supply (for example, a supply shock)
- an anti-inflationary incomes policy

You should be able to explain all of the above bullets in an AD-AS model, and also explain it in words using the correct economic terminology.

ACTIVITY 8.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The introduction of the *AD-AS* model means that the assumption of a fixed price level (as in the simple Keynesian models) has been dropped.		
(2)	The *AD-AS* model can be used to analyse changes in the price level.		
(3)	The *AD* curve illustrates the levels of total expenditure in the economy at various price levels.		
(4)	When government spending increases, the aggregate demand curve shifts to the right.		
(5)	If the interest rate increases, the aggregate demand curve will shift to the left.		
(6)	The *AS* curve illustrates the levels of output in the economy, which will be supplied at different price levels.		
(7)	An increase in the cost of production (for example, the cost of labour) will result in an upward (or leftward) shift of the aggregate supply curve.		
(8)	An unfavourable supply shock (for example, an increase in the price of oil) will result in an increase in the domestic cost of production of each level of output.		
(9)	An increase in aggregate demand is usually accompanied by a fall in the equilibrium level of income.		
(10)	A contractionary fiscal policy will shift the aggregate demand curve to the left.		
(11)	An increase in aggregate supply and a fall in aggregate demand, which happen simultaneously, will lead to a decrease in the price level.		
(12)	Stagflation is a term used to describe high unemployment accompanied by a high inflation rate.		
(13)	When the *AS* curve is very steep, an increase in aggregate demand leads to an increase in production with little or no increase in the price level		
(14)	A decrease in aggregate supply, illustrated by a leftward or upward shift of the *AS* curve, will haves an adverse effect on both the price level and the level of production in the economy.		

Short questions

Note: Solutions to the questions marked with an asterisk (*) are provided at the end of this learning unit.

(a) Define stagflation. (2)

(b) *Use aggregate demand (*AD*) and aggregate supply (*AS*) curves to analyse the impact of an expansionary fiscal policy on prices and production in the economy when income is below the full-employment level. (4)

(c) *Use the AD-AS model to explain the impact of contractionary fiscal policy on prices and production in the economy. (4)

(d) *Use aggregate demand (*AD*) and aggregate supply (*AS*) curves to analyse the impact of a supply shock on prices and production in the economy. (4)

(e) *Explain, with the aid of a diagram, why policy makers cannot solve the stagflation dilemma using only demand management (that is, monetary and fiscal policies). (8)

8.2 The monetary transmission mechanism

STUDY

Section 19.2 of the prescribed book – except for the subsection on "Other links between interest rates and the rest of the economy"

In the macroeconomic model developed in chapters 17 and 18, it was assumed that the money supply and the interest rate are fixed. By assuming a fixed money supply and a fixed interest rate we have actually eliminated the impact of money and monetary policy. In the *AD-AS* model introduced in the previous section, we dropped these assumptions and allowed for the impact of a variable interest rate on aggregate demand. We said that a fall in the interest rate would increase aggregate demand (illustrated by a rightward shift of the *AD* curve) and that an increase in the interest rate would reduce aggregate demand (illustrated by a leftward shift of the *AD* curve). We now need to examine these links more closely, that is, examine **how** changes in interest rates will affect total spending, production, income and prices in the economy. The way in which changes in the monetary sector are transmitted to the rest of the economy is called the monetary transmission mechanism. This section must be studied in detail. Note that the subsection on other links between interest rates and the rest of the economy is not prescribed for this module.

You have to be able to do the following:

- define the monetary transmission mechanism
- explain using symbols, diagrams and/or words, how a change in the repo rate affects the economy
- explain the crucial links in the monetary transmission mechanism
- explain the circumstances that determines the effectiveness of the monetary transmission mechanism

ACTIVITY 8.2

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) The monetary transmission mechanism is the process through which changes in the interest rate give rise to changes in variables such as spending and production.		
(2) The link between the interest rate and investment spending plays no role in the monetary transmission mechanism.		
(3) The smaller the interest elasticity of investment demand, the more effective an expansionary monetary policy will be to stimulate the economy.		
(4) The flatter the AS curve, the more effective an expansionary monetary policy will be to stimulate the economy.		
(5) The steeper the AS curve, the more effective a contractionary policy will be to combat inflation.		

Short questions

Note: Solutions to the questions marked with an asterisk (*) are provided at the end of this learning unit.

(a) Define a monetary transmission mechanism. (2)

(b) Explain why the link between the interest rate and investment spending is important in the monetary transmission mechanism. (2)

(c) *Use the *AD-AS* model and explain, with the aid of diagrams, how an increase in the interest rate will affect the level of prices, production and income in the economy. (10)

(d) *Summarise your explanation in (c) using a causality chain. (5)

(e) *The following statement is made in the prescribed book: "To summarise: The smaller the interest elasticity of investment demand, and also the steeper the *AS* curve, the less effective an expansionary monetary policy will be as a means of stimulating the economy". Do you agree? Use diagrams to substantiate your answer (10)

8.3 Monetary and fiscal policy in the AD-AS framework

STUDY

Section 19.3 of the prescribed book

In this section, we will summarise some of the earlier discussions and add a few further topics with regard to monetary and fiscal policy. You should be able to do the following:

- define and distinguish between fiscal and monetary policy
- Explain the concept *demand management*
- define and distinguish between expansionary (or stimulatory) monetary policy and restrictive (or contractionary) monetary policy
- define and distinguish between expansionary and restrictive (or contractionary) fiscal policy
- define and discuss the different lags associated with fiscal and monetary policy
- explan and discuss the relative effectiveness of monetary and fiscal policy under different circumstances understand and explain the policy dilemma in an open economy

ACTIVITY 8.3

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Restrictive monetary and fiscal policies are normally applied during recessions.		
(2)	Monetary policy entails the manipulation of government spending (*G*) and taxation (*T*).		
(3)	Restrictive fiscal policy may include a decrease in taxes and an increase in government expenditure.		
(4)	Expansionary monetary policy entails a decrease in the interest rate.		
(5)	The recognition lag would be shortened if economic data were available more timeously.		
(6)	The impact lag could be reduced by tackling bureaucracy and inefficiency of the government.		
(7)	The implementation lag associated with monetary policy is shorter than the implementation lag for fiscal policy.		
(8)	The impact lag associated with monetary policy is shorter than the impact lag for fiscal policy.		
(9)	The decision lag for fiscal policy is longer than the decision lag for monetary policy.		

Short questions

(a) Distinguish between fiscal and monetary policy. (6)

(b) Discuss the four lags associated with the implementation of fiscal and monetary policy. (10)

(c) *Suppose the economy is in equilibrium below the full employment level of income. Explain how fiscal policy may be used to decrease unemployment and how the price level will be affected by this. (7)

(d) *Use the AD-AS model to explain how expansionary monetary policy will affect the economy. (7)

(e) *Discuss, with the aid of a diagram, the policy dilemma in an open economy. (10)

Section 19.4 of the prescribed book is not prescribed for this module.

SOLUTIONS

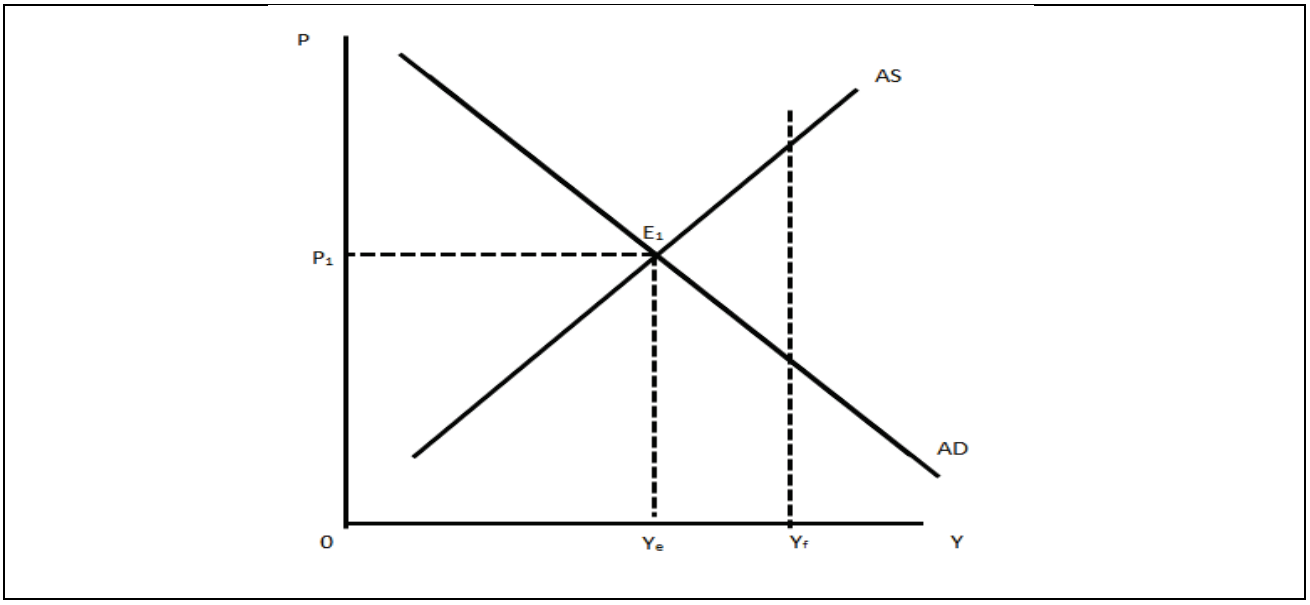
ACTIVITY 8.1

TRUE/FALSE STATEMENTS

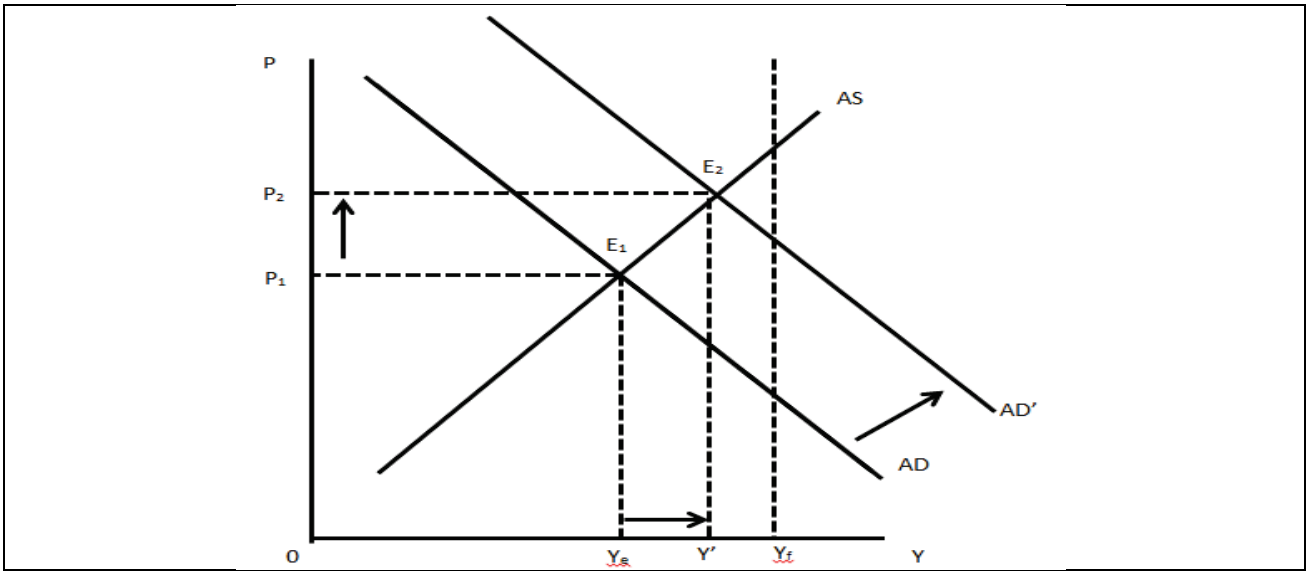
(1) T
(2) T
(3) T
(4) T
(5) T
(6) T
(7) T
(8) T
(9) F
(10) T
(11) T
(12) T
(13) F
(14) T

SHORT QUESTIONS

(b) Here you have to start by providing a diagram of the *AD-AS* model showing the equilibrium price level (P_1) and the equilibrium level of production or income (Y_e). Also, clearly indicate that the full-employment level of income (Y_f) is greater than the equilibrium level of income (Y_e):

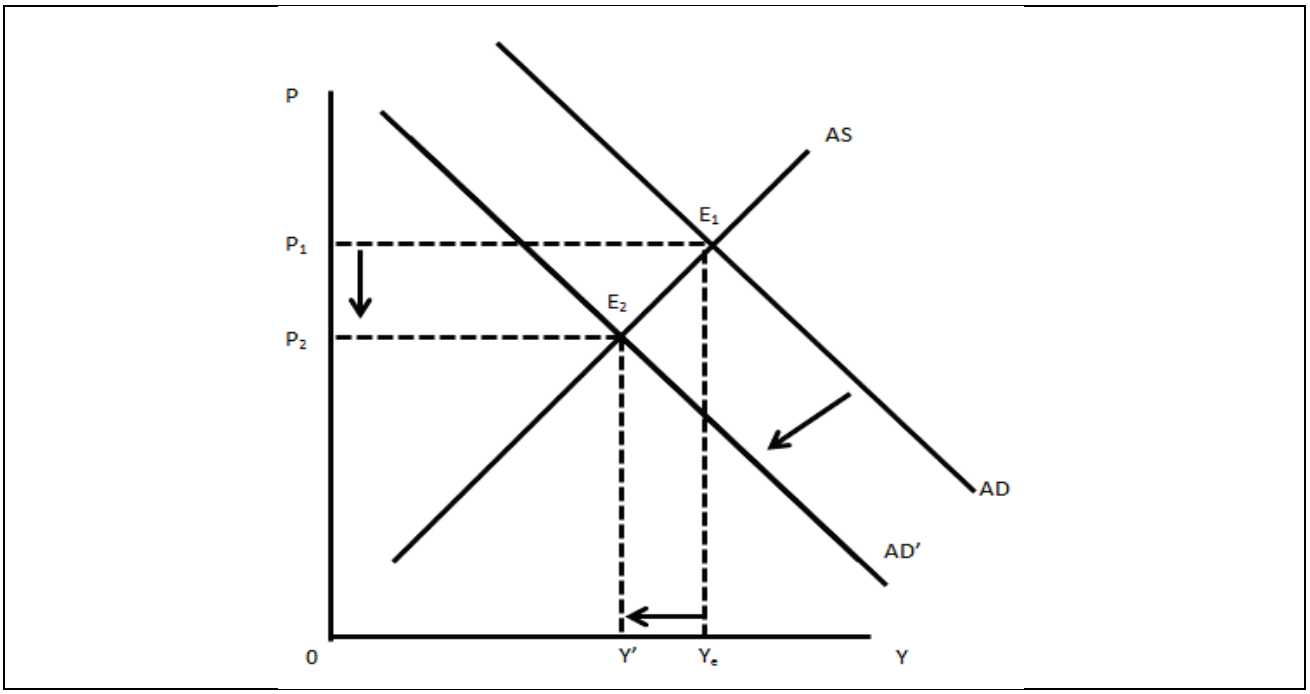


An expansionary fiscal policy can take the form of an increase in government spending and/or a lowering of tax rates. In both cases, the aggregate demand for goods and services will increase, illustrated by a rightward shift of the *AD* curve to AD'. This would result in an increase in total production (to *Y'*), but would occur at the expense of an increase in the price level (to P_2):



(Note that you are only expected to draw the second diagram; the first one is just to illustrate to you where you should start.)

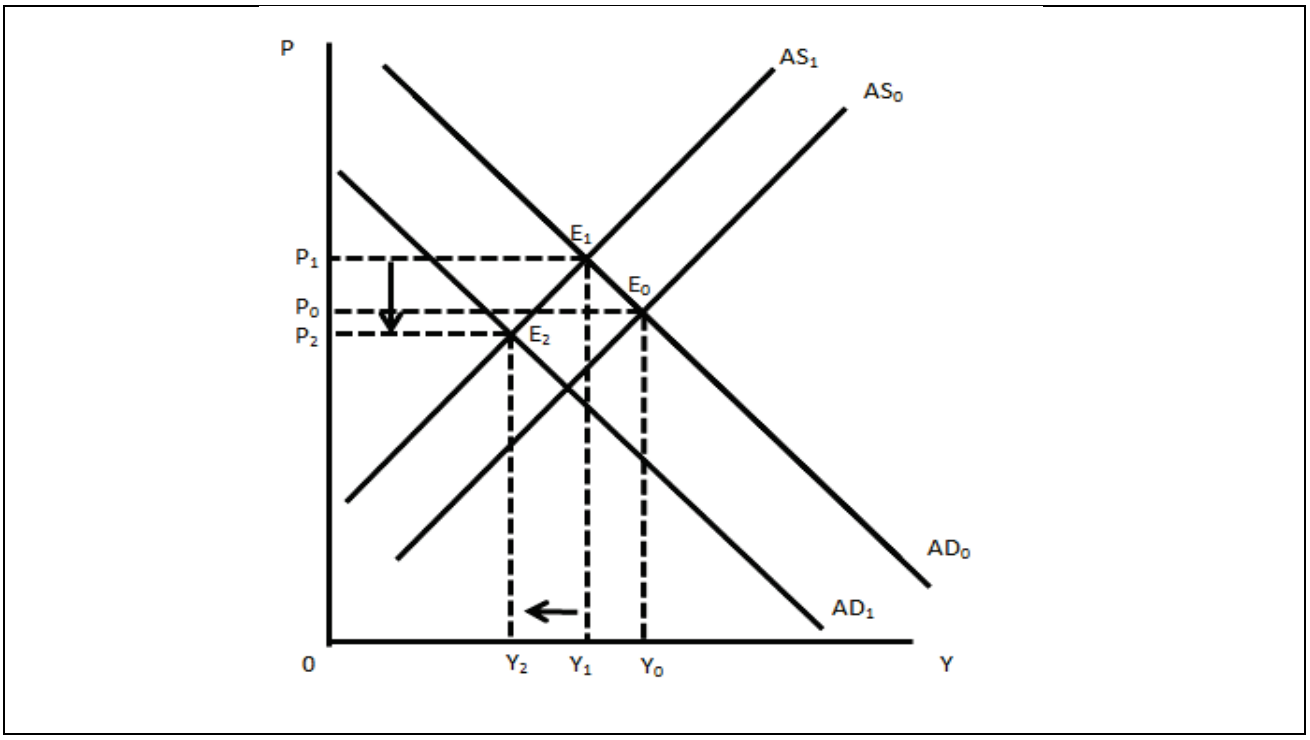
(c) Start by providing a diagram of the *AD-AS* model showing the equilibrium price level (P_1) and the equilibrium level of production or income (Y_e). A contractionary monetary policy refers to an increase in interest rates. An increase in interest rates makes it more expensive to borrow and therefore investment will decrease. Aggregate demand will therefore decrease and this is illustrated by a leftward shift of the AD curve to AD'. This results in a decrease in the price level to P_2 and a decrease in total production and the income level to Y'.



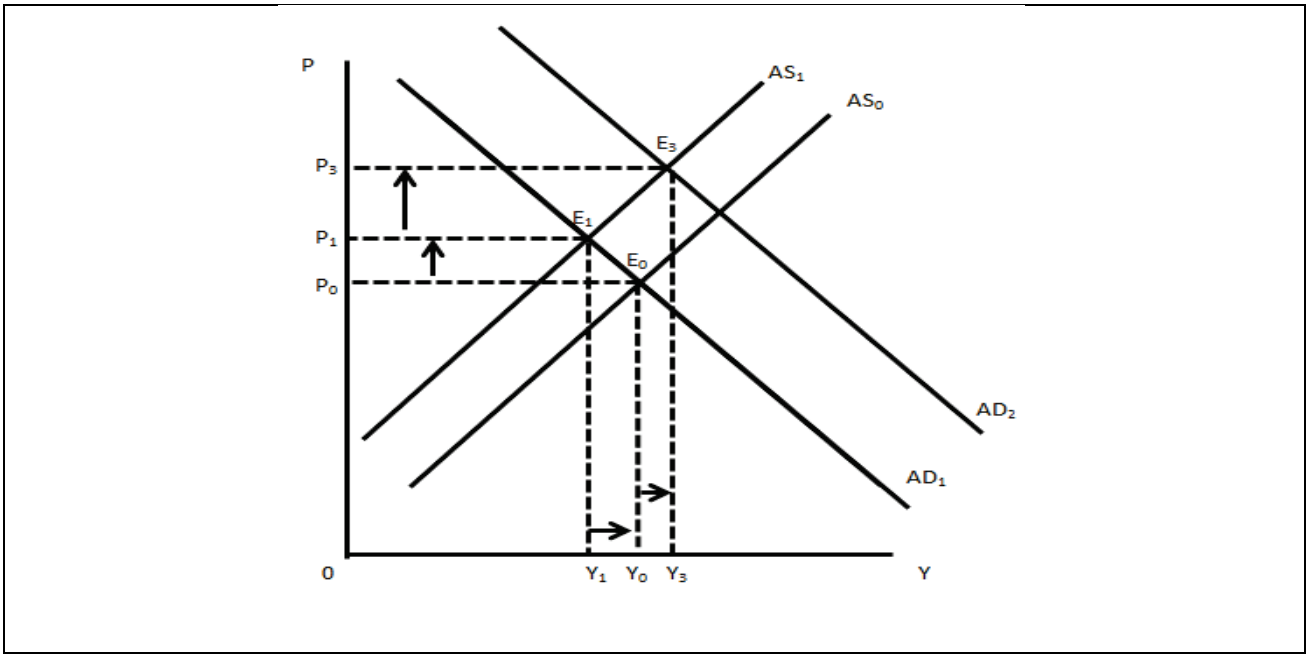
(d) To answer this question you have to provide a diagram similar to the one in figure 19-5 as well as the accompanying explanation. The essential elements of the answer are

- a decrease in supply – illustrated by a leftward (upward) shift of the *AS* curve (from AS_0 to $AS_{1)}$
- an increase in the price level (from P_0 to P_1)
- and a decrease in the level of production)from Y_0 to Y_1)
- which implies an increase in unemployment

(e) Start with a diagram illustrating a supply shock that results in an increase in both unemployment and the price level (figure 19-5 in your textbook). Both monetary policy and fiscal policy impact on the aggregate demand in the economy (illustrated by the *AD* curve). That is why the use of monetary and fiscal policies is called demand management. The increase in the price level can be counteracted by contractionary monetary and fiscal policies (for example, an increase in the interest rate, an increase in tax rates or a decrease in government spending). This can be illustrated by a leftward (downward) shift of the *AD* curve to AD_1. As can be seen in the diagram below this would result in a decrease in the price level from P_1 to P_2 but would be at the cost of even lower production, income (decreases from Y_1 to Y_2) and employment:



Alternatively, the decrease in production, income and employment can be counteracted by applying expansionary monetary and fiscal policies (for example, a decrease in the interest rate, an increase in government spending or a decrease in tax rates) This can be illustrated by a rightward (upward) shift of the aggregate demand curve to AD_2.. As can be seen in the diagram below this would result in an increase production, in income (from Y_1 to Y_3) and thus in employment. However the price level would increase even further to to P_3:



Demand management can thus be used to combat either the **stag**nation element **or** the **inflation** element of stagflation, but not both at the same time.

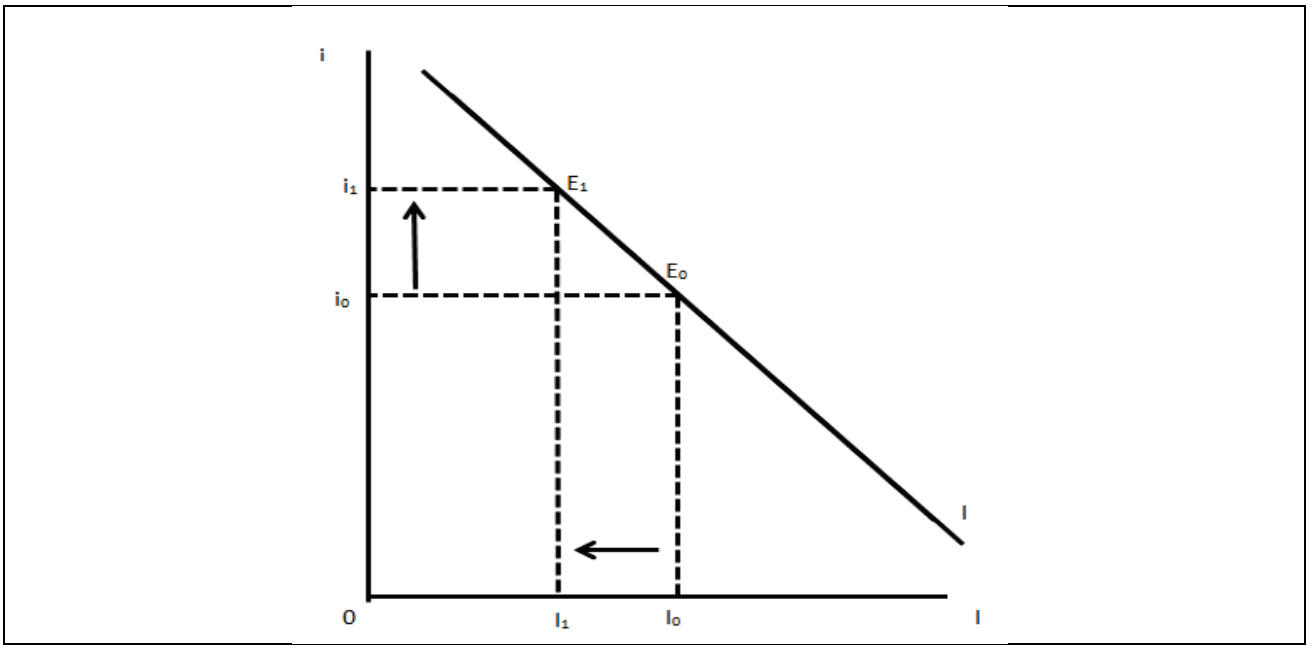
ACTIVITY 8.2

TRUE/FALSE STATEMENTS

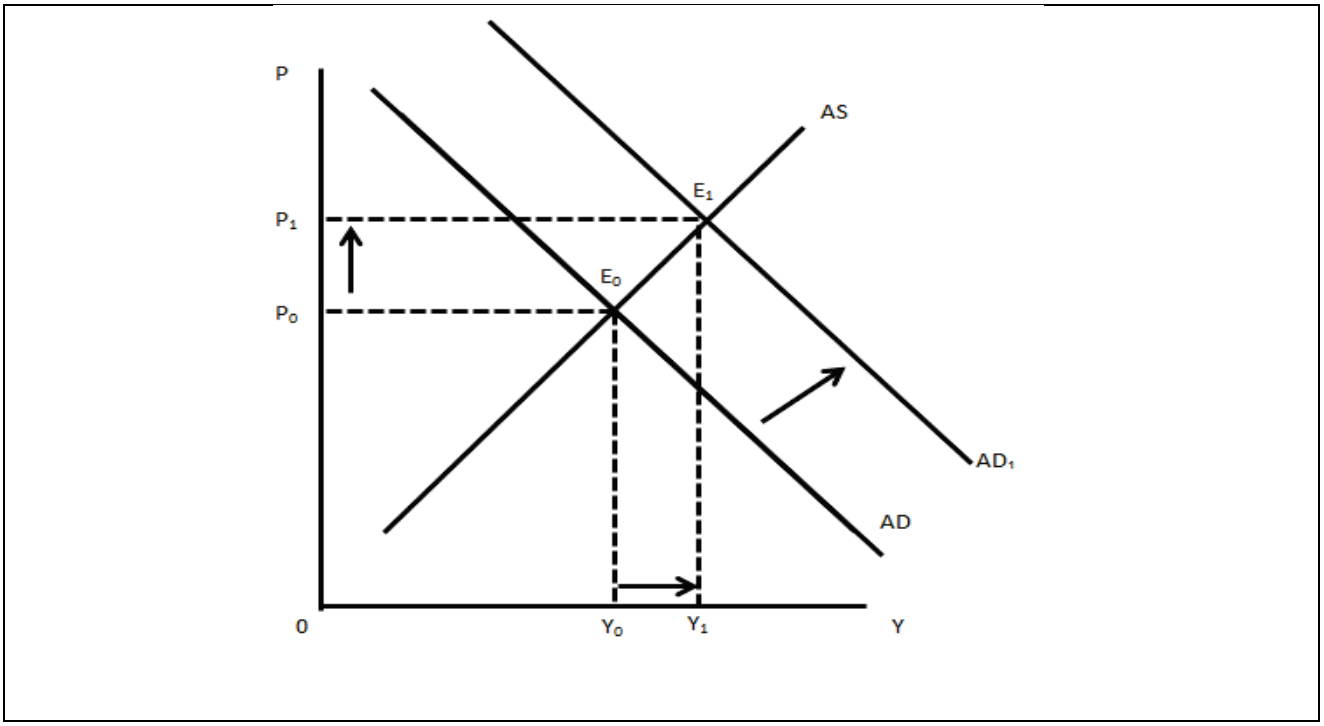
(1) T
(2) F
(3) F
(4) T
(5) T

SHORT QUESTIONS

(c) First use a diagram to illustrate what happens to investment spending when the interest rate changes:



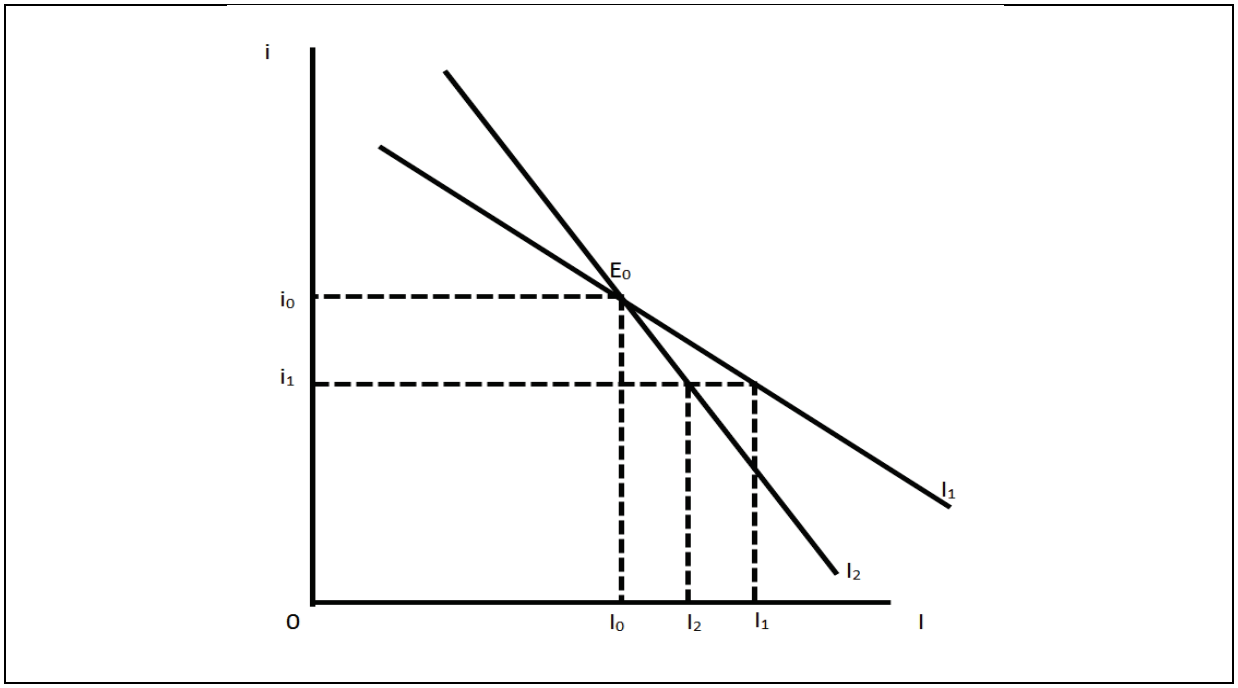
An increase in the interest rate (from i_0 to i_1) will lead to a decrease in investment (from I_0 to I_1). When investment increases, aggregate spending increases and thus also aggregate demand. This is illustrated by a rightward shift of the AD curve to AD_1 in the diagram below. The price level increases (from P_0 to P_1) and the income level increases (from Y_0 to Y_1).



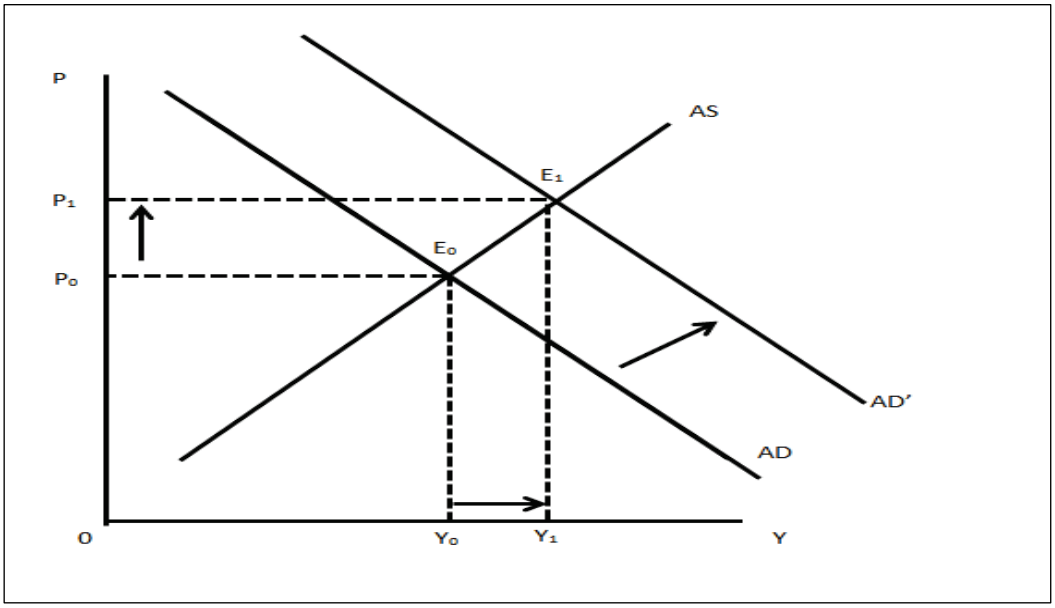
(d) $\uparrow i \rightarrow \downarrow I \rightarrow \downarrow A \rightarrow \downarrow AD \rightarrow \downarrow P$ and $\downarrow Y$

(e) To answer this question we are going to use diagrams similar to those in figure 19-7(a) and figure 19-7(c), and show how the economy will be affected by expansionary monetary policy when (i) the interest elasticity of investment demand is smaller, and (ii) the AS curve is steeper. Expansionary monetary policy refers to a decrease in the interest rate.

(i) When the interest elasticit of investment demand is smaller, it means that investment will react less to a change in the interest rate. This is illustrated by a steeper investment demand curve such as I_2. When the investment demand curve is flatter such as I_1, the investment demand changes from I_0 to I_1 when the interest rate falls from i_0 to i_1. When the investment demand curve is steeper such as I_2, the same change in the interest rate results in a smaller change in investment demand from I_0 to I_2,. This illustrates that the smaller the interest elasticity of demand the smaller the change in investment due to a change in the interest rate level.



(ii) When investment increases, aggregate spending increases and therefore aggregate demand will also increase. This can be illustrated with a rightward shift of the AD curve to AD_1. When the AS curve is relatively flat such as AS_1, the income level will increase from Y_0 to Y_1. When the AS curve is steeper such as AS_2, the income level will increase from Y_0 to Y_2, due to the same shift of the AD curve. This illustrates that when the AS curve is steeper (such as AS_2) expansionary policy which results in a shift in the AD curve to the right has a smaller effect on the income level than when the AS curve is flatter. You will also notice that the price level increases more when the AS curve is steeper (AS_2), and less when the AS curve is flatter (AS_1).



We have thus proofed that expansionary monetary policy will be less effective (i.e. will have a smaller effect on the income level) when investment demand is less interest elastic and when the AS curve is steeper.

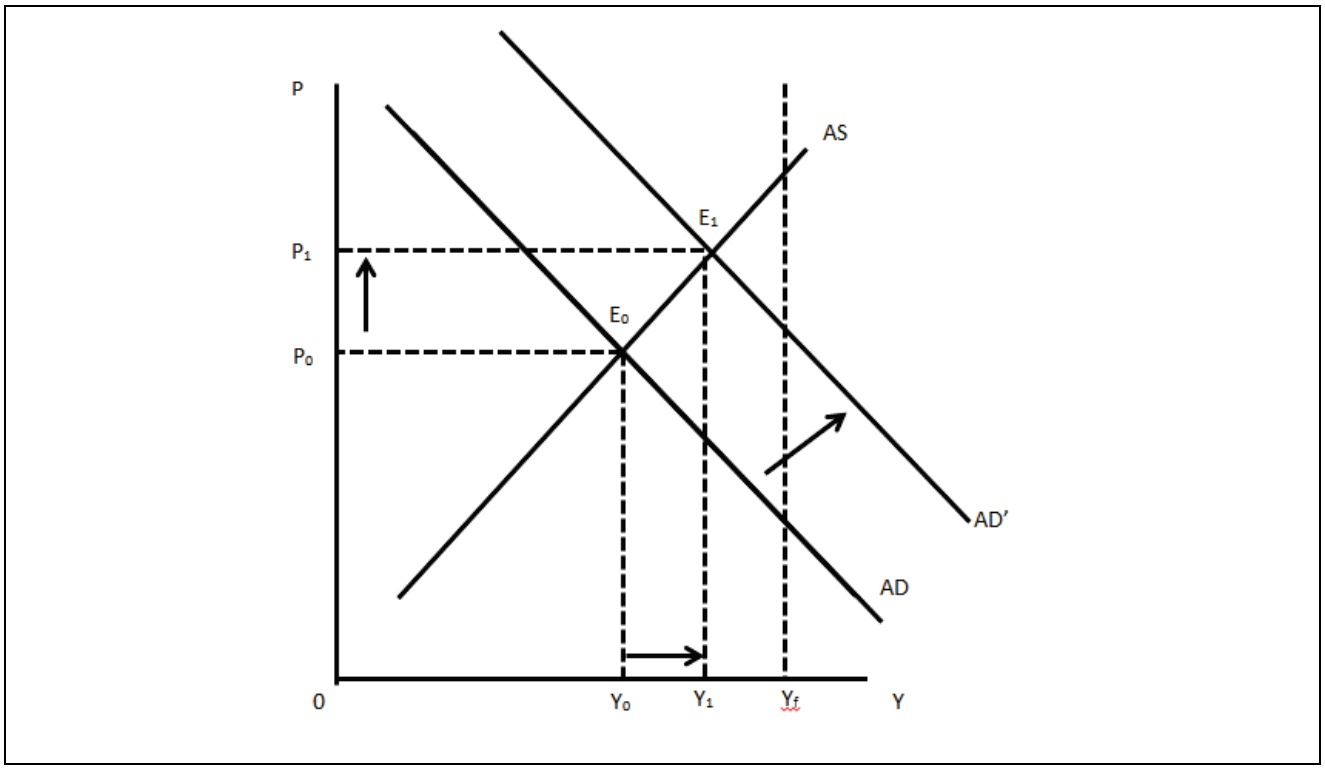
ACTIVITY 8.3

TRUE/FALSE STATEMENTS

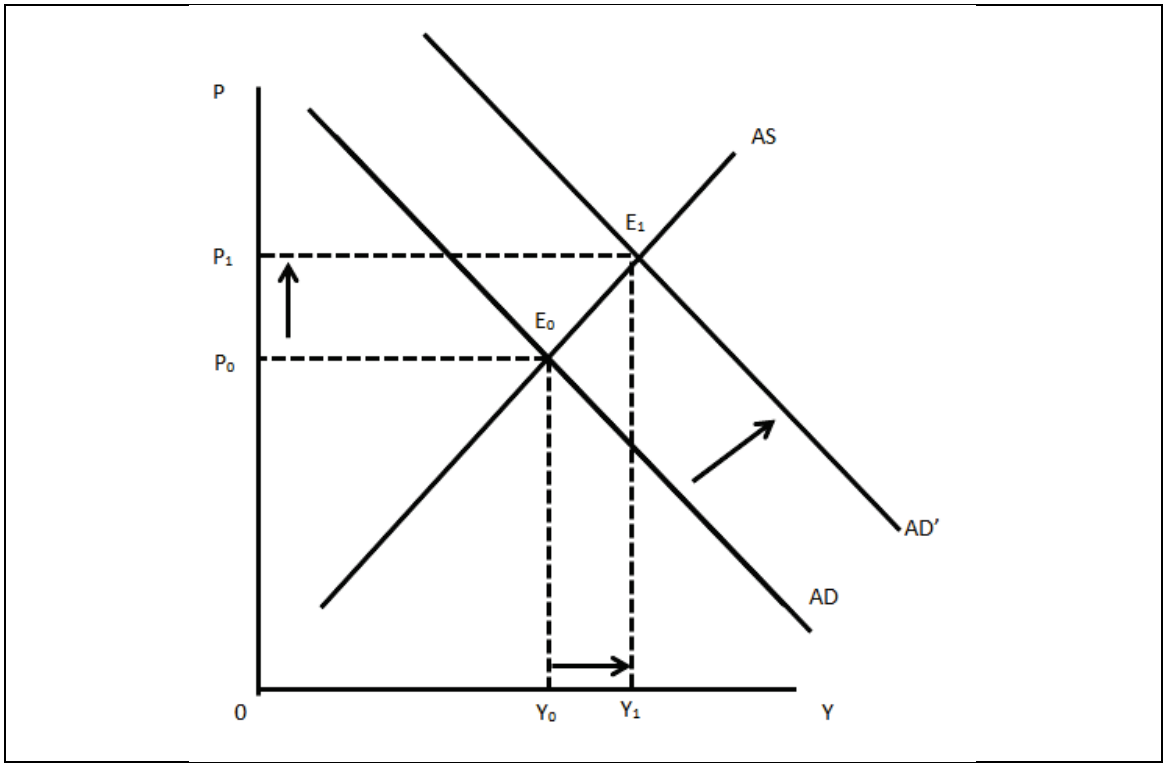
(1) F
(2) F
(3) F
(4) T
(5) T
(6) T
(7) T
(7) T
(8) F
(9) T

SHORT QUESTIONS

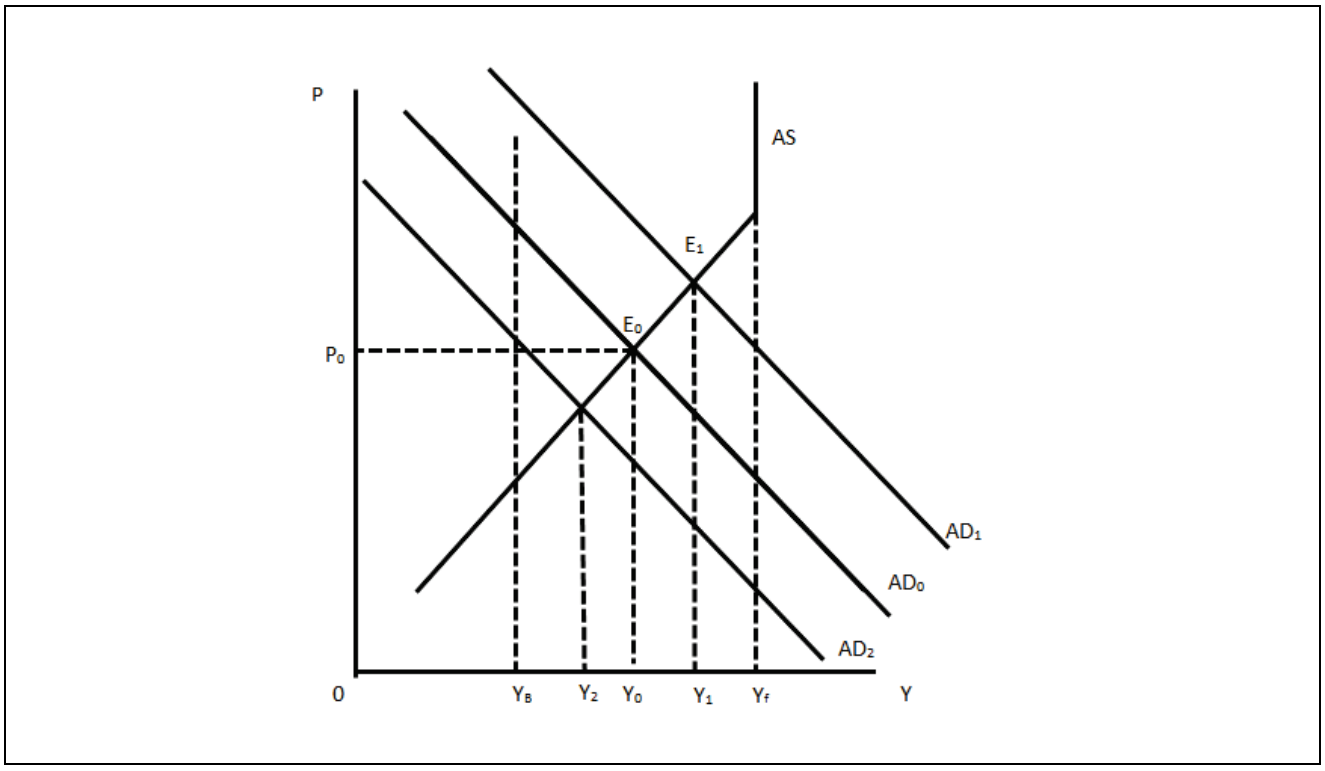
(c) As this question refers to both a change in the income level and the price level we know that we have to use the AD-AS model to analyse the situation. The economy is in equilibrium at E_0 at an income level of Y_0 and a price level of P_0 AS SHOWN IN THE DIAGRAM BELOW. The full employment level is Y_f. Expansionary fiscal policy will have to be used to increase aggregate demand. Expansionary fiscal policy involves an increase in government expenditure and/or a decrease in the tax rate. Both these measures will increase aggregate demand and can be illustrated with a rightward shift of the AD curve to AD'. The income level increases to Y_1 which is closer to the full employment level of income. However, the price level will also increase to P_1.



(d) An expansionary monetary policy implies that the repo rate will decrease. This will decrease the interest rate level in the economy and, thus, also the interest rates at which banks provide loans to customers. As it is cheaper to borrow, investment will increase and thus aggregate spending will increase. This will increase aggregate demand illustrated by a rightward shift of the AD curve to AD' in the diagram below. The increase in aggregate demand results in an increase in production and thus also an increase in the income level from Y_0 to Y_1. However, the price level also increases from P_0 to P_1.



(e) The economy is in equilibrium at E_0 in the diagram below at an income level of Y_0 and a price level of $_{Y0}$. Y_0 is below the full employment level of income Y_f. At Y_B the balance of payments is in equilibrium, i.e. exports are equal to imports. At a higher income level imports will increase, therefore imports will exceed exports resulting in a balance of payments deficit. At Y_1 there is thus a balance of payments deficit. If the government or monetary authorities use expansionary fiscal or monetary policy aggregate demand will increase illustrated by a rightward shift of the AD curve, e.g. to AD_1. This will increase income to Y_1 and decrease unemployment, but it will increase the size of the balance of payment deficit (as the new equilibrium income level if further away from Y_B). If the government used restrictive fiscal or monetary policy, aggregate demand will decrease, illustrated by a leftward shift of the AD curve to AD_2, the new equilibrium income level (Y_2) will be closer to Y_B, thus the balance of payment deficit will decrease as imports decreases when income decreases, but unemployment will increase as the new income level (Y_2) is at a lower level of production that Y_0, and further away from the full employment income level (Y_f). The policy dilemma is thus that demand management policies cannot be used to address both the problems of a balance of payments deficit and unemployment.



CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
list the basic assumptions of the *AD-AS* model				
define				
- the *AD* curve				
- the *AS* curve				
- stagflation				
- a supply shock				
- demand management				
- contractionary fiscal/monetary policy				
- expansionary fiscal/monetary policy				
- the trade-off principle				
- the transmission mechanism				
Explanations				
I am able to				
explain the implications of the assumptions of the *AD-AS* model				

Inflation 9

LEARNING UNIT

Inflation has often been described as "public enemy number one". But what is inflation? How is it measured? Why is it a problem? What causes inflation and how can it be combated? In this learning unit, we take a closer look at inflation, focusing on the definition, effects and different types of inflation.

OUTCOMES

After you have worked through this learning unit, you should be able to

- define inflation
- define the consumer price index (CPI)
- use CPI data to calculate inflation rates
- define the production price index (PPI)
- discuss the differences between the CPI and PPI
- define the implicit GDP deflator
- compare the different measures of inflation
- explain why policy makers regard inflation as a problem
- explain the difference between demand-pull and cost-push inflation using diagrams
- explain the conflict approach to inflation

CONTENTS

9.1 Definition of inflation

STUDY

Section 20.1 of the prescribed book

Study the definition of inflation in detail (noting the four aspects of the definition).

ACTIVITY 9.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) An increase in the price of vegetables is a good example of inflation.		
(2) Inflation involves a continuous and considerable increase in the general level of prices.		
(3) A once-off increase in prices cannot be classified as inflation – inflation is a continuous process of increasing prices.		
(4) If prices increase at a constant rate, there is no inflation.		

Short questions

(a) Define inflation. (3)

(b) List the main elements of the definition of inflation. (4)

9.2 Measurement of inflation

STUDY

Section 20.2 of the prescribed book

This section picks up from our discussion of the CPI in learning unit 5. It begins with an explanation of how a set of CPI data can be used to calculate the inflation rate. The production price index (PPI), a measure of the cost of production, is introduced. You must be able to differentiate between the implicit GDP deflator, the CPI and the PPI. Note how the implicit GDP deflator is used to calculate the economic growth rate.

ACTIVITY 9.2

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	The CPI is an inflation rate.		
(2)	The rate of change in the CPI is one of the possible measures of inflation.		
(3)	The CPI is an index of the cost of living.		
(4)	The calculation of a core inflation rate is an attempt to measure the underlying inflationary pressures in the economy.		
(5)	The basket used to calculate the core inflation rate excludes fresh and frozen meat, fish, vegetables and fruit.		
(6)	The prices used to calculate the core inflation rate exclude VAT.		
(7)	The consumer price index measures the cost of living, while the production price index measures the cost of production.		
(8)	The PPI excludes the prices of imported goods.		
(9)	The PPI excludes the prices of services – only goods are included in the PPI basket.		
(10)	The PPI includes the prices of capital goods.		
(11)	Consumers are generally more interested in the rate of change in the implicit GDP deflator than in the rate of change in the CPI.		

Short questions

(a) Describe the CPI. (3)

(b) Describe the PPI. (3)

(c) Differentiate between the CPI and the PPI. (4)

(d) Describe the implicit GDP deflator. (3)

(e) Differentiate between the CPI and the implicit GDP deflator. (4)

9.3 Effects of inflation

STUDY

Section 20.3 of the prescribed book

Study the distribution effects, economic effects, and social and political effects of inflation (to understand why combating inflation is such a serious matter to policy makers).

ACTIVITY 9.3

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Inflation tends to benefit debtors at the expense of creditors.		
(2)	Inflation reduces the real value (or purchasing power) of money.		
(3)	Inflation tends to benefit government at the expense of the private sector.		
(4)	Inflation tends to redistribute income and wealth of elderly people with relatively fixed nominal incomes to younger people whose nominal incomes are keeping pace with inflation.		
(5)	The fact that taxpayers are taxed on their nominal incomes, irrespective of what happens to their real incomes, could give rise to bracket creep (as in South Africa).		
(6)	High inflation tends to stimulate speculative activity at the expense of productive activity.		
(7)	Real interest rate is the rate at which banks are prepared to lend money, while the nominal interest rate is the rate that can be earned on savings deposits at banks.		
(8)	Inflation can cause balance of payments problems, particularly when a country's inflation rate is consistently higher than the inflation rates in the economies of its major trading partners and international competitors.		

Short questions

Note: The solution to the question marked with an asterisk (*) is provided at the end of this learning unit.

(a) *Explain why policy makers regard inflation as a problem. (10)

(b) Distinguish three main types of costs of inflation, and give examples of each. (9)

9.4 Causes of inflation

STUDY

Section 20.4 of the prescribed book – except the subsection dealing with the structuralist approach to inflation

The distinction between demand-pull inflation and cost-push inflation is one of the most basic elements of the theory of inflation and must be studied in detail. Demand pull inflation occurs when the participants of the economy want to purchase more goods and services than what the economy can produce. The resulting excess demand leads to an increase in prices, causing inflation. Note that the fight against demand pull inflation results in a trade-off between inflation and unemployment. Cost push inflation occurs when the increase in prices is caused by the increase in the cost of production.

The crux of the conflict approach is the continual imbalance between the claims/demands of various interest groups and the production capacity of the economy. Imagine the GDP as a big cake baked by the citizens of a country. The stakeholders in the country each want to maximise their share of the cake (they each want their slice of the cake as big as possible). If we could put all these individual slices together we'll see it is much more or bigger than the cake. And now? How can achieve a balance between the claims and the available cake? The only way we can make the cake bigger is by importing cake, which is often not an option, or we could make the slices appear bigger – we must "inflate" the slices. There must be an increase in the price level, but we know if the price level increases only the nominal value of GDP increase. The real value (or the size of the cake) remains the same. Inflation is thus a sign of the unresolved claims of the various groups.

Alternatively, the claims of the stakeholders must be reduced – a seemingly easy option, but very difficult to achieve in practice.

ACTIVITY 9.4

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Demand-pull inflation can be illustrated by an outward or rightward shift of the aggregate demand (*AD*) curve.		
(2)	Demand-pull inflation can be caused by an increase in any or a combination of *C*, *I*, *G* and *X*.		
(3)	Demand-pull inflation raises the price level while it reduces the level of production or income in the economy at the same time.		
(4)	Demand-pull inflation can be combated by applying expansionary monetary and fiscal policies.		
(5)	Reduced government spending and increased interest rates are two of the measures that can be used to combat demand-pull inflation.		
(6)	Cost-push inflation can be illustrated by an upward or leftward shift of the *AS* curve.		
(7)	Increased profit margins, decreased productivity and increases in the prices of imported capital goods are all potential causes of cost-push inflation.		
(8)	During cost-push inflation, increases in the price level are accompanied by reductions in the level of production or income. That is why it can also be called stagflation.		

Short questions

Note: Solutions to the questions are provided at the end of this learning unit.

(a) Use aggregate demand (*AD*) and aggregate supply (*AS*) curves to illustrate the difference between cost-push inflation and demand-pull inflation and list possible causes of each type of inflation. (10)

(b) Explain, with the aid of diagrams, what policy measures can be used to combat cost- push inflation and demand-pull inflation respectively, and comment on the possible side-effects of these measures. (10)

(c) Briefly explain the conflict approach to inflation. (6)

Section 20.5 of the prescribed book is not prescribed for this module.

SOLUTIONS

ACTIVITY 9.1

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) T
(4) F

ACTIVITY 9.2

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) T
(4) T
(5) T
(6) T
(7) T
(8) F
(9) T
(10) T
(11) F

ACTIVITY 9.3

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) T
(4) T
(5) T
(6) T
(7) F
(8) T

SHORT QUESTIONS

(a) To answer this question you have to summarise the different costs of inflation. Use the three categories (distribution effects, economic effects, and social and political effects) to organise your answer and list some of the most important costs in each category. Of course, you are also free to add other observations, provided they make economic sense.

ACTIVITY 9.4

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) F
(4) F
(5) T
(6) T
(7) T
(8) T

SHORT QUESTIONS

(a) You could have used diagrams similar to those in figure 20-1 and figure 20-2 to answer this question. Demand-pull inflation is illustrated by a rightward (upward) shift of the *AD* curve. Such inflation is accompanied by an increase in total production and income (up to the full- employment level). Once full employment has been achieved, any further increase in aggregate demand will raise only the price level.

Note that inflation pertains to the economy as a whole and that we are therefore dealing with the general price level and total production or income (**not** with the prices or production of individual goods and services, as in microeconomics).

Cost-push inflation is illustrated by a leftward (upward) shift of the *AS* curve. This results in an increase in the price level, accompanied by a decrease in production, income or employment (that is, an increase in unemployment). That is why cost-push inflation is sometimes also referred to as stagflation.

All that remains is to name the possible causes of each type of inflation.

(b) Start by drawing diagrams of demand-pull inflation (figure 20-1) and cost-push inflation (figure 20-2). To combat demand-pull inflation, aggregate demand has to be reduced. This can be achieved by applying contractionary monetary and fiscal policies, illustrated by a leftward (downward) shift of the *AD* curve. However, such policies have the undesirable side-effect of reducing total production, income or employment in the economy. In other words, the result is greater unemployment (except if the economy is still at the full-employment level after the implementation of the policies) if the movement is from AD_4 to AD_3 (figure 20-1).

In the case of cost-push inflation, a contractionary monetary or fiscal policy will succeed in lowering the general price level but it will increase unemployment even further. In principle, the appropriate policy strategy would be to raise aggregate supply (illustrated by a rightward or downward shift of the *AS* curve).

CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
define inflation				
describe the CPI, PPI and the implicit GDP deflator				
differentiate between the CPI, PPI and the implicit GDP deflator				
define demand-pull inflation				
define cost-push inflation				
Explanations				
I am able to				
differentiate between nominal and real values				
explain why policy makers regard inflation as a problem				
distinguish between the main types of costs of inflation				
describe what measures can be used to get rid of demand-pull inflation				
explain what measures can be used to get rid of cost-push inflation				
explain the conflict approach to inflation				
Diagrams				
I am able to **(i) show on a diagram** **(ii) explain with or without the aid of a diagram**				
the difference between demand-pull and cost-push inflation				
the impact of measures taken to get rid of demand-pull and cost-push inflation				
Calculations				
I am able to calculate				
- the inflation rate				

Unemployment

10

LEARNING UNIT

In this learning unit, we will take a closer look at unemployment. We will consider the definition, the costs, and different types of unemployment. Once we have done that, certain policy options in the fight against unemployment will be highlighted.

After you have worked through this learning unit, you should be able to

- define the rate of unemployment
- identify the costs of unemployment
- distinguish between the different types of unemployment
- suggest policies to tackle the unemployment problem
- illustrate and explain the Phillips curve

CONTENTS

STUDY
Section 5.4 of the prescribed book

Section 21.1 of the prescribed book

Box 21-1 of the prescribed book

The rate of unemployment in South Africa forces us to take a very close look at this section of the work. In this learning unit, you need to understand why economists regard unemployment as a problem. First of all, unemployment poses significant costs to society and to the individuals who are unemployed. Secondly, if unemployment is left unchecked, it may lead to divergence of resources from productive sectors to spending on unemployment benefits and other social welfare programmes. How do people end up being classified as unemployed?

There are various factors that explain the types of unemployment. Among other factors, people may become unemployed due to the fact that once unemployed, it usually takes time to find another job. This results in what is known as *frictional unemployment*. In some cases, people become unemployed only during certain seasons of the year. The type of unemployment in this case in known as *seasonal unemployment*. There are also occasions during which insufficient demand in the economy results in people being laid-off or remaining unemployed for a considerable period of time. This results in *cyclical unemployment*. The most complex and common type of unemployment is the *structural unemployment*, whereby the qualifications that are held by the potential unemployed individuals do not suit the existing job requirements. It is important that you refer to examples showing how the rate of unemployment is calculated. The rate of unemployment is obtained by expressing the number of unemployed persons as a percentage of the labour force.

- ## Measuring unemployment

Note the different ways in which unemployment is defined in this subsection

ACTIVITY 10.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) It is easy to define and measure unemployment.		
(2) The unemployed include those people who are not willing to work.		
(3) The rate of unemployment is obtained by expressing the number of unemployed people as a percentage of the labour force.		

- ## The cost of unemployment

You must be able to differentiate between the individual costs of unemployment and the costs to society in general.

ACTIVITY 10.2

Indicate whether the following statement is **true** (T) or **false** (F):

Note: The answer is provided at the end of this learning unit.

	T	F
(1) Unemployment involves significant costs both to individuals who are unemployed and to society as a whole.		

Short questions

(a) Describe the costs of unemployment to society in general. (4)

(b) Differentiate between the individual cost of unemployment and the cost to society as a whole. (7)

- **Types of unemployment**

The different types of unemployment must be studied in detail.

ACTIVITY 10.3

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) There will always be some frictional unemployment, and this type of unemployment is not regarded as a serious problem.		
(2) Cyclical unemployment occurs when there is a recession resulting from a temporary lack of sufficient aggregate demand in the economy.		
(3) Cyclical unemployment is associated with recessions.		
(4) Structural unemployment is a serious problem since it cannot be remedied by simply increasing the aggregate demand for goods and services.		
(5) Workers who are replaced by labour-saving machines become structurally (or technologically) unemployed.		
(6) Structural unemployment is usually limited to specific industries, sectors or categories of workers.		

Short question

(a) Distinguish between frictional, seasonal, cyclical and structural unemployment and give an example of each type. (8)

- **Policies to reduce unemployment**

Note that the unemployment problem must be tackled from both the supply and the demand side.

ACTIVITY 10.4

Short question

(a) Discuss the policies that can be implemented to reduce unemployment. (10)

- **Unemployment in the Keynesian and AD-AS models**

In this subsection, the Keynesian and *AD-AS* models are revisited. Note the positive relationship between an increase in production and an increase in employment.

ACTIVITY 10.5

Short question

(a) Discuss the following statement: "An increase in real production is a necessary but not sufficient condition for reducing unemployment". (5)

10.2 Unemployment and inflation: the Phillips curve

STUDY

Section 21.2 of the prescribed book

The existence of the Phillips curve is a controversial topic, but the term has become so established in economics that you should know what it is. In particular, you should be able to explain the implications of a Phillips curve for policy makers as well as the causes and consequences of a rightward shift of the Phillips curve.

ACTIVITY 10.6

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) The Phillips curve is an illustration of a possible trade-off between inflation and unemployment.		
(2) According to the Phillips curve, a lower inflation rate will give rise to a lower unemployment rate.		
(3) According to the Phillips curve, a lower inflation rate can be "bought" at the expense of a higher unemployment rate.		

Short question

(a) Illustrate and explain the Phillips curve, and discuss the policy implications of the existence of such a curve. (6)

SOLUTIONS

ACTIVITY 10.1

TRUE/FALSE STATEMENTS

(1) F
(2) F
(3) T

ACTIVITY 10.2

TRUE/FALSE STATEMENTS

(1) T

ACTIVITY 10.3

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) T
(4) T
(5) T
(6) T

ACTIVITY 10.6

TRUE/FALSE STATEMENTS

(1) T
(2) F
(3) T

CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
define the rate of unemployment				
identify the costs of unemployment				
Explanations				
I am able to				
distinguish between the different types of unemployment				
suggest policies to tackle the unemployment problem				
Diagrams				
	Well	**Satis-factory**	**Must redo**	**Need help**
I am able to				
the Phillips curve – figures 21-2 and 21-3				
Calculations				
I am able to calculate				
the unemployment rate				

Economic growth and business cycles

11

LEARNING UNIT

Economic growth is mentioned in each learning unit of this study guide. Various policy measures are discussed and suggestions made on what can be done to enhance economic growth. What do you think can be done to improve economic growth? In this learning unit, we will examine the definition, measurement and causes of economic growth.

OUTCOMES

After you have worked through this learning unit, you should be able to

- define economic growth
- explain how economic growth is measured
- define the business cycle
- identify sources of economic growth

CONTENTS

11.1 Definition and measurement of economic growth

STUDY

Section 22.1 of the prescribed book

The first section deals with the definition and measurement of economic growth. Economic growth is usually defined as the annual rate of increase in real gross domestic product (real GDP). Allowance should preferably also be made for population changes (that is, the figures should be expressed on a per capita basis), but this is not always done. There is no "perfect" measure of economic growth – even GDP is subject to a number of shortcomings of which you should take note. As indicated in this section, the calculation of economic growth is not a smooth process, a feature of economic growth, which is related to the business cycle.

You have to be able to do the following:

- Define economic growth
- Discuss why economic growth should be measured in real terms and why it should be expressed on a per capita basis
- Name and explain the problems associated with GDP
- Interpret changes in real GDP and real GDP per capita as shown in table 22-1

ACTIVITY 11.1

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	GDP for 2004 expressed at 2000 prices is an example of nominal GDP.		
(2)	GDP for 2004 expressed at 2004 prices is an example of nominal GDP.		
(3)	GNI for 2004 expressed at 1995 prices is an example of real GNI.		
(4)	When measuring economic growth, changes in prices and in the population should be taken into account.		
(5)	One of the problems associated with GDP as a measure of economic activity is that not all goods and services are sold in markets, which makes it difficult to value them in monetary terms.		
(6)	GDP is an accurate indicator of economic welfare.		
(7)	GDP measures the impact of economic growth on pollution and environmental destruction.		
(8)	Once GDP has been estimated for a certain period, the figure obtained is never adjusted.		

Short questions

(a) Define economic growth. (2)

(b) Explain why it is important to use real GDP (or GNI) per capita when measuring economic growth. (2)

(c) List four problems associated with GDP as a measure of total production in the economy. (4)

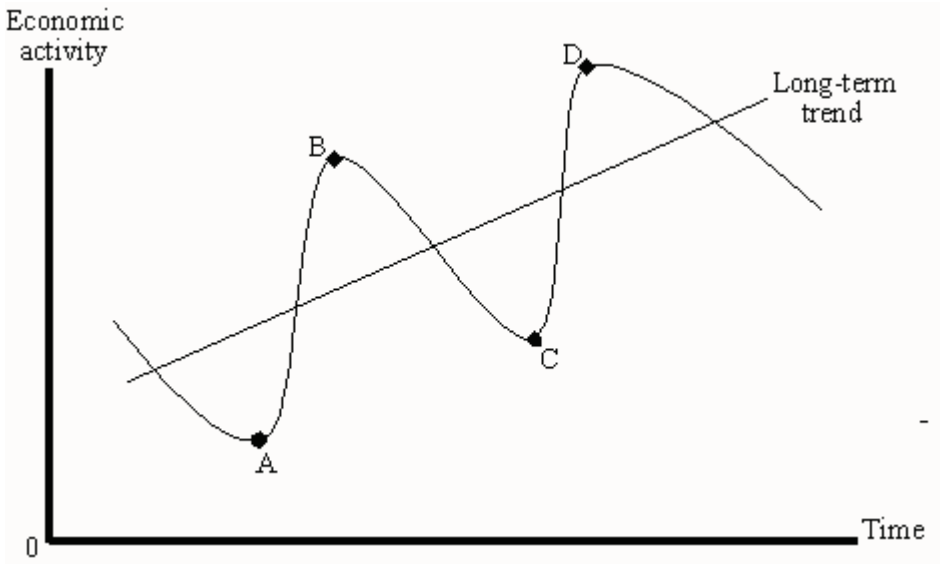
11.2 The business cycle

STUDY

The extract below
(taken from Section 22.2 of the prescribed book)

The business cycle is the pattern of upswing (expansion) and downswing (contraction) that can be identified in economic activity over a number of years. One complete business cycle has four elements: a trough, an upswing or expansion (also called a boom), a peak, and a downswing or contraction (also called a recession). The different elements of the business cycle are illustrated in the

following diagram:



The figure shows a complete business cycle from one trough (point A) to the next trough (point C). The cycle describes a pattern of fluctuation around the long-term trend. After the trough, there is an upswing indicated by AB. The peak is reached at point B, followed by a downswing from B to C.

Note. The information provided here is the only part of section 22.2 you have to study. The rest of section 22.2, that is the subsections on the causes of business cycles and measuring business cycles are not prescribed for this module.

ACTIVITY 11.2

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

	T	F
(1) Economic growth is a smooth process.		
(2) The expansion phase of the business cycle ends at the peak of the cycle.		
(3) The expansion phases of the business cycle (upswings) always last exactly as long as the recession phases (downswings).		

Short questions

(a) Define the business cycle, and list the four elements of a complete cycle. (6)

11.3 Sources of economic growth

STUDY

Section 22.3 of the prescribed book

This section deals with the sources of economic growth. You should be able to identify the various supply factors and demand factors discussed in this section. Note that the supply factors all relate to the four factors of production, while the demand factors relate to the components of aggregate spending (or aggregate demand) in the economy.

ACTIVITY 11.3

Indicate whether the following statements are **true** (T) or **false** (F):

Note: Answers are provided at the end of this learning unit.

		T	F
(1)	Sustained economic growth requires a sustained expansion of both aggregate supply and aggregate demand.		
(2)	An increase in the quantity and/or quality of the various factors of production is a prerequisite for sustained economic growth.		
(3)	An increase in the quantity and/or quality of the factors of production is a necessary condition for economic growth, but is not sufficient to ensure economic growth.		
(4)	Sustained economic growth requires an expansion in aggregate demand for goods and services.		
(5)	Inward industrialisation is a strategy for economic growth, which focuses on domestic demand (that is, the demand for housing and electricity).		
(6)	Import substitution means that goods that were previously produced locally are now imported.		

Short question

(a) What are the main sources of economic growth viewed from
  (i) the supply side?
  (ii) the demand side? (7)

Sections 22.4 and 22.5 of the prescribed book are not prescribed for this module.

SOLUTIONS

ACTIVITY 11.1

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) T
(4) T
(5) T
(6) F
(7) F
(8) F

ACTIVITY 11.2

TRUE/FALSE STATEMENTS

(1) F
(2) T
(3) F

ACTIVITY 11.3

TRUE/FALSE STATEMENTS

(1) T
(2) T
(3) T
(4) T
(5) T
(6) F

CHECKLIST

	Well	Satis-factory	Must redo	Need help
Concepts				
I am able to				
define economic growth				
list the problems associated with the use of GDP				
define the business cycle				
name the elements of a business cycle				
identify sources of economic growth from the supply side				
identify sources of economic growth from the demand side				
Explanations				
I am able to				
explain how economic growth is measured				
explain the importance of using real GDP per capita when measuring economic growth				
Diagrams				
I am able to				
show the business cycle on a diagram– see the figure in the study guide				