ECS3701 MAY/JUN 2013 MEMO

SECTION A COMPULSORY QUESTION

QUESTION 1

1.1 Differentiate between the following

(i) Direct and indirect finance [4]

-direct financing- borrowers borrow funds directly from lenders in the financial markets by selling them securities ✓✓

-Indirect finance- financial intermediary stands between lender-savers and borrower-spenders and helps transfer funds from one to the other ✓✓

(ii) Money market and capital market [4]

*The **money market is** a financial market in which only short-term debt instruments are traded. They are more widely traded and so tend to be more liquid. Short term instruments also have smaller fluctuations making them safer instruments* ✓✓.
*The **capital market** is the market in which longer-term debt and equity instruments are traded.* ✓✓

1.2 Financial intermediaries promote economic efficiency by performing a variety of services. Explain the following functions of financial intermediaries.

(i) Lower transaction costs [2]

- transaction costs are the time and money spent in carrying out financial transactions. Financial intermediaries reduce the transaction costs as they have the expertise and can take advantage of economies of scale ✓*. The low cost allows financial intermediaries to provide customers with liquid services, i.e. services that make it easier to conduct transactions.* ✓

(ii) Asymmetric information [8]

- Asymmetric information is when one party does not know enough about the other party to make accurate decisions ✓✓*. Lack of information creates problems on two fronts:*

1. Adverse Selection – created by asymmetric selection before the transaction occurs ✓*. It occurs when the potential borrows who are most likely to produce an*

undesirable outcome (bad credit risks) are the ones who most actively seek out loans and thus are likely to be selected causing lenders not to make any loans ✓.

2. Moral Hazard- created by asymmetric selection after the transaction occurs ✓. It is the risk (hazard) that the borrower might engage in activities that are undesirable (immoral) from a lenders point of view as the loan is less likely to be paid back ✓. Financial intermediaries are better equipped to than individuals to screen out the bad credit risks from the good ones reducing the losses resulting from adverse selection ✓✓.

1.3 List and explain the three functions of money [6]

-medium of exchange – means of making payments and receiving goods and services in return ✓✓

-unit of account- used to ascertaining the value of a product or service ✓✓

-store of value ✓✓

1.4 Assume that at an MPC meeting at the South African Reserve Bank decides to have a contractionary monetary policy. What impact will this have on real production (Y)? Motivate your answer by discussing the credit channel transmission mechanism, in the South African context. [16]

-The monetary policy effect is represented as:

$\uparrow$ *repo rate* $\rightarrow \downarrow$ *bank deposits* $\rightarrow \downarrow$ *bank loans* $\rightarrow (\downarrow Inv, \downarrow C) \rightarrow \downarrow Y$

-This channel operates, firstly, through bank lending. Certain borrowers will not have access to credit markets unless they borrow from banks. Contractionary monetary policy reduces bank reserves and bank deposits, thus decreasing the amount of loans available. This decrease in loans will cause fixed capital formation and consumer spending to drop.

-A significant implication is that monetary policy through this channel will have a greater effect on those more reliant on bank loans, such as smaller firms, since larger firms have recourse to obtaining funds by issuing new share capital. As circumstances and restrictive regulatory frameworks change to restrict banks from the ability to raise funds, the potency of this channel will be reduced.

Secondly, credit affects the balance sheets of households and firms and also arises

from asymmetric information in credit markets:

↑repo rate → ↓price expectations → ↓cash flow → ↑adverse selection →

→ ↑moral hazard → ↓lending →(↓Inv, ↓C) → ↓Y

Detailed logical sequence of events will earn the student full marks.

SECTION B OPTIONAL QUESTIONS

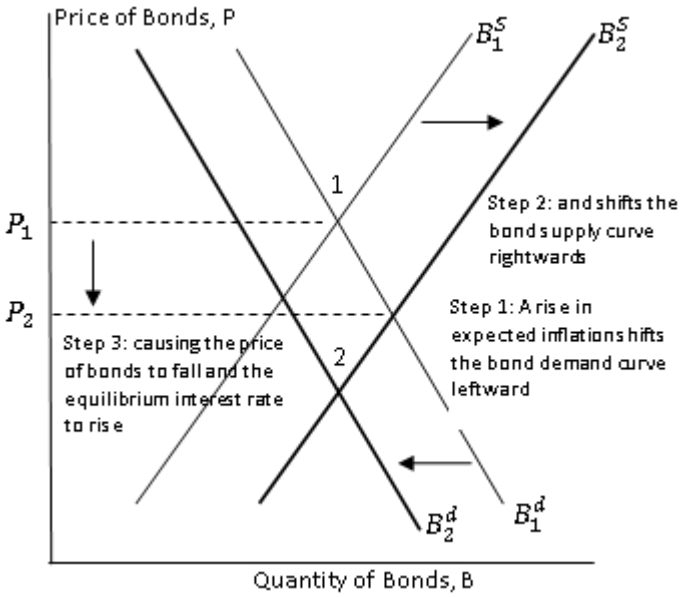
Question 2

2.1 With the aid of diagrams and explanations, explain how a higher expected rate of inflation will influence:

(i) the demand for and supply of bonds

(ii) the equilibrium price of bonds

(iii)the equilibrium quantity of bonds [15]



Maximum of 6 marks for correct graph

The figure shows the effect on the equilibrium interest rate of an increase in the expected inflation.

If expected inflation is initially 5% and the initial supply and demand curves intersect at 1 where equilibrium bond price is P1.

1. *If expected inflation rises to 10%, the expected return on bonds relative to real assets falls and the demand curve shifts to the left from B_1^d to B_2^d.* ✓✓✓

2. *The rise in inflation also shifts the supply curve, the real cost of borrowing has declined causing the bonds supplied to increase shifting the supply curve to the left from B_1^s to B_2^s.* ✓✓✓
3. *There is a new equilibrium at point 2, the bond price has fallen to P2 and because the bond price is negatively related to the inflation rate, this means interest has not risen. The quantity of bonds could also rise or fall with inflation.* ✓✓✓

2.2 The money multiplier is given by:

$$M = \frac{1+c}{rr+e+c}\ (MB)$$

What do the variables r, e and c represent? What will be the effect of a decrease in r on the multiplier? [5]

-r is reserve requirement ratio ✓

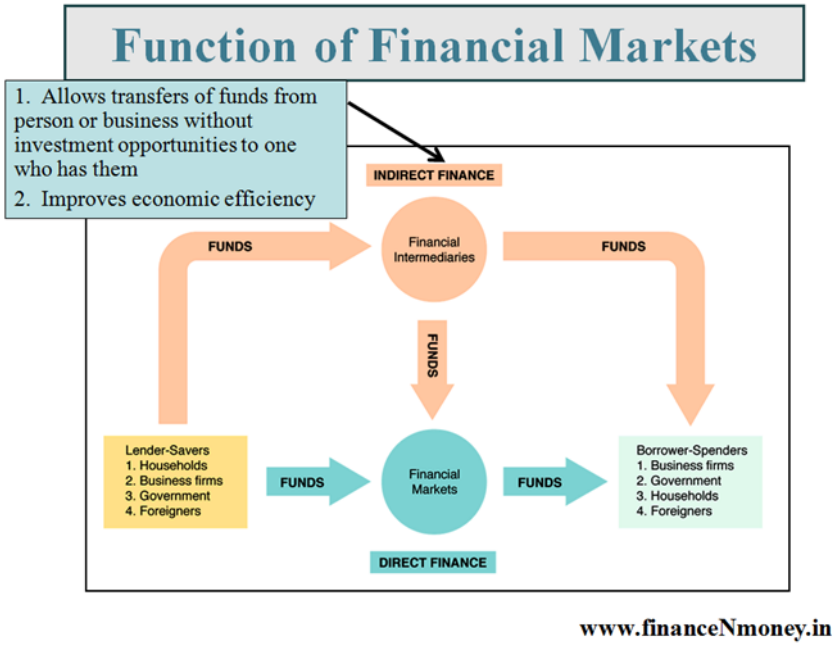
-e is the excess reserves ratio ✓

-c is the currency ratio ✓

-a decrease in r results in a lower multiplier ✓✓

Question 3

3.1 Illustrate with the aid of a diagram the flow of funds through the financial system. (Hint: Show and explain all the direction of flows) [10]



10 Marks may be awarded if all crucial components are mentioned

3.2 List the five elements of inflation targeting [5]

(i) Public announcement of medium-term numerical objectives for inflation ✓

(ii) An institutional commitment to price stability, as the long-run goal of monetary policy and a commitment to achieve the inflation goal. ✓

(iii) An information-inclusive approach in which many variables are used in making decisions about monetary policy ✓

(iv) Increased transparency of the monetary policy strategy through communication with public markets about the plans and objectives of monetary policy ✓.

(v) Increase accountability of the central bank for attaining its inflation objectives ✓.

3.3 Discuss the advantages of inflation targeting [5]

-It can help focus the political debate on what a central bank can do in the long run, i.e. control inflation, rather than what it cannot do, increase economic growth and employment. It has the potential to reduce political pressures on central banks. ✓
-It is readily understood by the public and is highly transparent due to regular communication with the public. These channels of communication explain the following concepts to the public, market participants and politicians:

1. *The goals and limitations of monetary policy, including the rationale for inflation targeting*
2. *The numerical values of the inflation targets and how they are achieved.*
3. *How inflation targets are to be achieved given the economic conditions*
4. *Reasons for deviations from targets.*

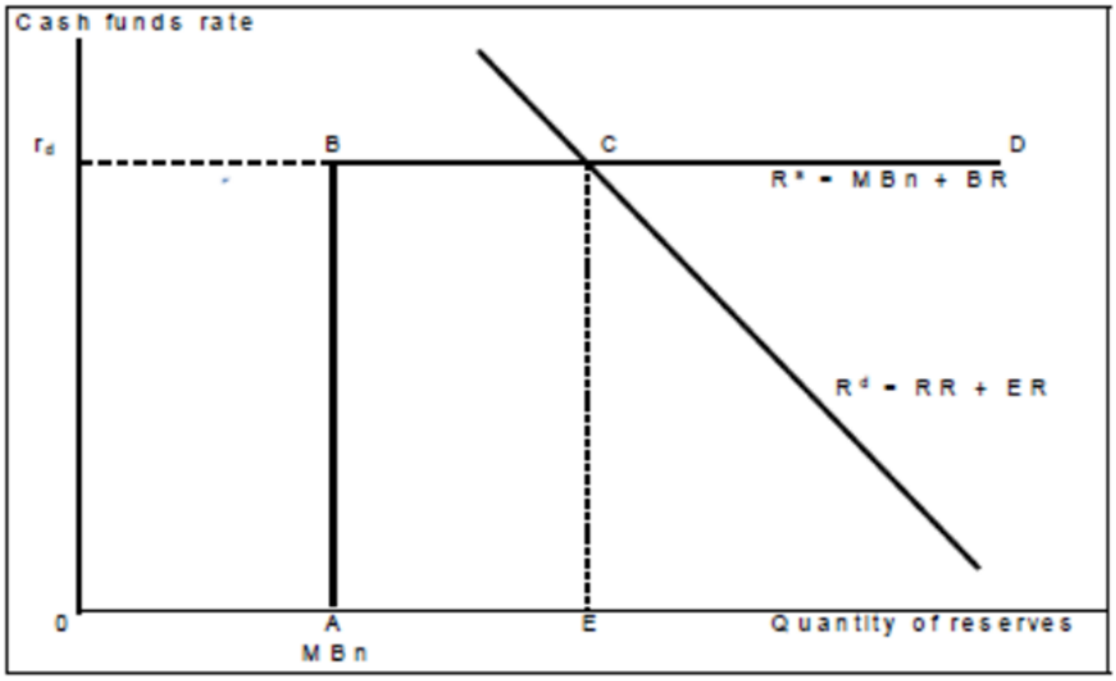
These communications have improved private sector planning by reducing uncertainty about monetary policy, inflation and interest rates. ✓✓

-There is the tendency towards increased accountability. ✓

-Often, once inflation has been reduced, it has stayed down even during subsequent cyclical expansions ✓

Question 4

Graphically explain and illustrate how the market for bank reserves functions in South Africa. (Hint: Explain each of the curves (and its components), the point of equilibrium and how the SARB in principle conducts its monetary policy [20]



10 marks for correctly labelled, drawn and fully annotated diagram. 10 more marks for logical explanation

In the USA, while the Rd curve intersects the Rs curve in its vertical section, in South Africa the Rd curve intersects the Rs curve in its horizontal section (point C).

The vertical axis shows the cash funds rate. Unlike the situation in the USA, the cash funds rate is not determined by the market but is fixed by the SARB at level rd. The supply of reserves curve (Rs) is denoted by ABD. The vertical section (AB) shows that the supply of non-borrowed reserves (MBn) is independent of the cash funds rate. The horizontal section BD shows the amount of borrowed reserves (BR) that the SARB is willing to supply at the fixed repo rate rd.

The demand for reserves (Rd) curve is downward sloping. Rd consists of the sum of required reserves (RR=r.D) plus excess reserves (ER). Excess reserves are kept at a minimum as it inhibits a bank's ability to generate profits The inverse relation between the cash funds rate and Rd in the USA is explained by Mishkin in terms of the fact that the cash funds rate is an opportunity cost of excess reserve (ER) holding. Hence, the higher (lower) i, the lower (higher) the demand for ER will be.

The Rd and Rs curves intersect at point C which shows the equilibrium quantity of reserves are 0E at the interest rate rd. The total quantity of reserves 0E consists of 0A of nonborrowed reserves plus AE of borrowed reserves. In South Africa, the SARB ensures that the banks always have a liquidity shortage which forces them to borrow

reserves from the SARB. The amount of borrowed reserves in SA is about ¼ of total reserves.

The system in South Africa works differently from that of the USA. In the USA, the Fed uses open market operations (OMOs) to manipulate the scarcity of funds in the interbank market as a way of targeting the interest rate in that market (the fed funds rate). Virtually all the normal reserve needs of the US banking system are met through OMOs at the prevailing fed funds rate. Banks seek discount loans only when they have exceptional cash needs, presumably because they have been somewhat less than averagely prudent. For that reason, the Fed charges an interest rate on discount loans, which is usually about 100 basis points higher than the current federal funds rate.

The refinancing system in South Africa is based on that of Europe and the UK. Initially the idea was to also have an active interbank market where banks lend cash reserves to each other. However, in South Africa this market is simply too small to function effectively. The small number of large banks prevents free competition in the interbank market and thwarts the possibility of maintaining a target cash funds rate by manipulating the scarcity of cash. Consequently, the SARB had to change to system where the cash funds rate is not determined in the interbank market but is fixed by the SARB.

In South Africa, the SARB conducts its OMOs in such a way that it ensures that the banks do NOT obtain all the reserves they need to meet their reserve requirements. The aim is to force the banks to supplement their reserves by seeking accommodation loans from the central bank. Because the SARB meets all these accommodation loan requests unconditionally, the interest rate it sets there (the "repo rate") becomes the pivotal rate that dominates the interbank cash funds rate and ultimately the rate banks charge their borrowers.

Question 5

Explain why the price stability goal is desirable, despite other pressing and potentially conflicting problems. What is the role of nominal anchor? Also explain the nature of time inconsistency problem [20]

-In the long-run, price stability promotes economic growth, financial and interest rate stability✓✓. In the short-run, price stability often conflicts with the goals of output stability and interest rate stability such as when the economy is expanding and

unemployment is falling, the economy may become overheated, leading to a rise in inflation ✓✓. A central bank would prevent this by raising interest rates initially causing output to fall controlling inflation but increase interest-rate instability ✓✓✓✓

- As no inconsistency exists between achieving price stability on the long run and the natural rate of unemployment, the mandate is not very different if maximum output is defined as the natural rate of unemployment, in theory ✓. In practice, there is a substantial difference could exist, as the public and government may believe that a hierarchical mandate puts too much emphasis on inflation control and not enough on stabilizing output. ✓✓✓✓

-As low and stable inflation promotes economic growth, central banks realize that price stability should be the primary long-run goal, but not a short term goal. Central banks can focus on reducing output fluctuations by allowing inflation to deviate from the long-run goal for short periods. ✓✓✓✓

-Time inconsistency is when policymakers abandon a long-term goal in pursuance of a short-term goal ✓✓✓. Nominal anchor, which is the use of a nominal variable to tie down prices, can control time-inconsistency problem ✓✓.

ECS3701 OCT/NOV2013 MEMO

SECTION A COMPULSORY

Question 1

1.1 Briefly explain the function of financial markets through what lender-savers and borrowers-spenders do. [5]

-Channels funds from households, firms & government that have surplus funds by spending less than their income (lender-savers) to those that have shortage of funds because they wish to spend more than their income (borrower-spenders) ✓✓✓

-Financial markets allow funds to move from people who lack productive investment opportunities to people who have such opportunities. ✓✓

1.2 If the South African Reserve Bank decrease the repo rate,

(i) Explain in detail the effect of this action through the change in rand value on output, Y, as well as on the domestic aggregate price level, P

(ii) What channel under the transmission mechanism and policy will be used in this case? [18]

(i) The interest rate channel can be presented as follows:

↓repo rate → ↓interest rates →(↑Investment, ↑C) → ↑Y, P ↑ ✓✓✓✓

where Y is real income, C: real consumption and Inv: real fixed capital formation.

Changes in the repo rate initially influence the interest rates on retail financial products✓✓*. Soon after the repo rate is changed, domestic banks are inclined to adjust their lending rates, usually, but not necessarily, by the same amount as the policy change*✓✓✓*. In South Africa, the Reserve Bank repo rate, the prime overdraft rate of commercial banks and the interest rate on fixed deposits generally move in tandem. Firms and individuals respond to the change in interest rates by altering their investment and spending patterns*✓✓✓ *As a result, consumer spending (C), fixed capital formation (Inv) and real output (Y) start to respond*✓✓*. It is through this channel that demand pressures feed through changes in the output gap to inflation*✓✓✓✓*.*

(ii) Interest rate channel

1.3 Explain why the price stability goal is desirable, despite other pressing and potentially conflicting problems. What is the role of nominal anchor? Also explain the nature of time inconsistency problem [15]

-In the long-run, price stability promotes economic growth, financial and interest rate stability. In the short-run, price stability often conflicts with the goals of output stability and interest rate stability such as when the economy is expanding and unemployment is falling, the economy may become overheated, leading to a rise in inflation. A central bank would prevent this by raising interest rates initially causing output to fall controlling inflation but increase interest-rate instability ✓✓✓✓

- As no inconsistency exists between achieving price stability on the long run and the natural rate of unemployment, the mandate is not very different if maximum output is defined as the natural rate of unemployment, in theory. In practice, there is a substantial difference could exist, as the public and government may believe that a hierarchical mandate puts too much emphasis on inflation control and not enough on stabilizing output. ✓✓✓✓

-As low and stable inflation promotes economic growth, central banks realize that price stability should be the primary long-run goal, but not a short term goal. Central banks can focus on reducing output fluctuations by allowing inflation to deviate from the long-run goal for short periods. ✓✓✓✓

-Time inconsistency is when policymakers abandon a long-term goal in pursuance of a short-term goal ✓✓✓*. Nominal anchor, which is the use of a nominal variable to tie down prices, can control time-inconsistency problem* ✓✓*.*

1.4 Explain how financial intermediaries perform the function of lowering transaction costs thereby promoting economic efficiency [2]

- transaction costs are the time and money spent in carrying out financial transactions. Financial intermediaries reduce the transaction costs as they have the expertise and can take advantage of economies of scale ✓*. The low cost allows financial intermediaries to provide customers with liquid services, i.e. services that make it easier to conduct transactions.* ✓

Section B Optional Questions

Question 2

Explain in detail how the motives, under the Keynes's liquidity preference theory predict both nominal income and interest rates affect the demand for money. Write down Keynes money demand function [20]

Keynes' liquidity preference theory explains the motives behind which people hold (demand) money. Individuals prefer money as it is the most liquid asset, hence the term liquidity preference ✓. Keynes (1936), explained three reasons (motives) by which individual prefer to hold money for. The three motives were transactionary motive, precautionary motive and speculative motive.

Transactionary motive ✓. People engage in their daily activities like paying rent, bills, transport costs, engaging in projects and other businesses ✓. To conduct these transactions, individuals will have to hold money ✓, hence the transactionary motive. Under this motive, money serves the function as a medium of exchange, and therefore it's an active balance ✓. Demand for money for transactionary balances is relatively interest inelastic, but more income elastic. ✓The theory argues that the higher the national income, the more transactions are done, hence more money has to be held as transactionary balances ✓. Therefore, transactionary demand for money is a positive function of national income ✓.

Precautionary motive ✓. Individuals also set money aside for unforeseen contingencies like unemployment and sicknesses. These are balances held by individuals for precautionary reasons ✓, hence precautionary motive. Empirical evidence backing the theory also states that precautionary balances are positively related to national income. ✓ Money demanded for precautionary reasons is also an active balance.

Speculative motive ✓. Individuals also hold money in speculation on favourable changes in the interest rates. Money is demanded as a store of value under this motive, hence a passive balance. Interest rates, an opportunity cost for holding money, are negatively ✓ related to demand for money for speculative reasons as holding money in periods of high interest rates will result in higher opportunity costs ✓.

These motives put together, explains the demand for money. Demand for money is inversely related to interest rates and positively related to national income. The following functions explains the demand for money:

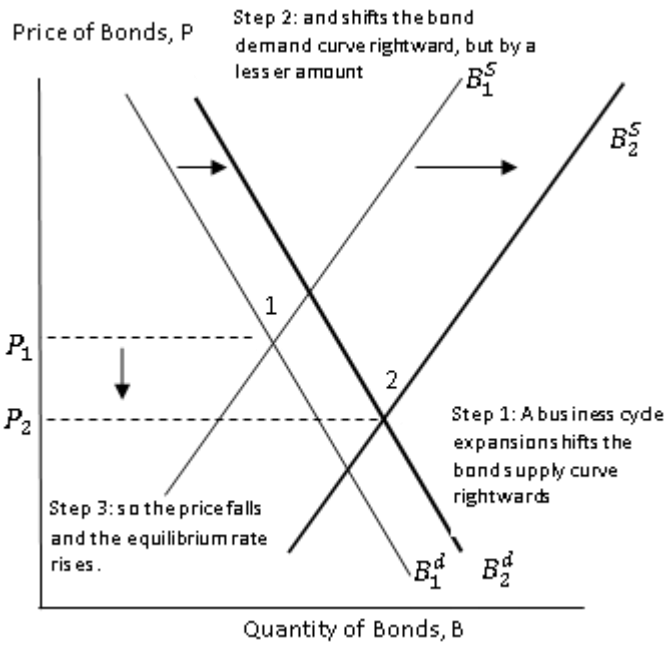
$$\frac{M^d}{P} = L^{(i,y)}_{-+} \checkmark\checkmark$$

Where i are interest rates and Y is national income ✓✓. From the model, the conclusion was drawn that money demand is unpredictable and unstable.

The interaction of the demand for money, as explained by the liquidity preference theory and money supply determines interest rates in the economy. These are the conditions brought forth by the theory

Question 3

3.1 Illustrate with the aid of a diagram, and clearly indicate the shifts in the curves, how a business cycle expansion will influence the supply and demand of bonds, the price of bonds and equilibrium price of quantity under the theory of asset demand. Explain the diagram. [17]



In a business cycle expansion, the amounts of goods and services being produced in the economy increase and national income rises. When this occurs;

1. *Businesses are more likely to borrow as there are more investment opportunities, more bonds will be sold at a given price and the supply curve for bonds shifts to the right from B_1^s to B_2^s..*
2. *Wealth is therefore likely to increase, telling us that the demand for bonds will rise as well. The demand curve shifts right from B_1^d to B_2^d.*
3. *Both the supply and demand curve shift right, however, depending which curve shifts more the equilibrium interest rate can either rise or fall.*

The supply demand analysis here can give us an ambiguous answer. Generally, interests rate rise during expansions.

3.2 List the three primary functions of money [3]

-medium of exchange

-unit of account

-store of value

Question 4

4.1 Read the paragraph written in the question paper

(i) Would the money supply and monetary base move in tandem? Explain your answer [5]

Yes. There is a positive relationship between monetary base and money supply.

(ii) What would be the effect of these on the monetary base and money supply [10]

-monetary contraction results in lower monetary base and money supply

-withdrawing money from banks reduces deposits and ultimately reserves, humpers deposit creation. Money supply and monetary base decrease

-making excess reserves costless reduces creation of money hence monetary base and money supply decrease.

-therefore, all these effects result in lower monetary base and money supply

4.2 The money multiplier is given by:

$$M = \frac{1 + c}{rr + e + c}\ x\ MB$$

What do the variables r, e and c represent? What will be the effect of a decrease in r on the multiplier? [5]

-r is reserve requirement ratio

-e is the excess reserves ratio

-c is the currency ratio

-a decrease in r results in a lower multiplier

Question 5

5.1 Define inflation and explain the difference between inflationary impulse and inflationary spirals initiated by an increase in the price of good. (Hint: explain first generational and further generation effects) [12]

-Inflation can be defined as a continuation of price increases whereby these increases feed on themselves ✓✓ – price increases leading to price increase. Hence inflation is a process rather than an event; it does not refer to a momentary (impulse), once-off increase in prices but to a spiral of sustained price increases. ✓✓✓

-Inflationary impulse is a once-off rise in the price of a good. More commonly referred to as a "first-generation inflation effect" ✓✓✓. But an inflationary impulse does not yet constitute inflation. Inflation is not a single once-off rise in the price of goods, but as a sustained spiral of price increases ✓✓.

-Inflationary spirals occurs when the first increase in inflation triggers inflation further and further, hence spiral ✓✓

5.2 Describe the four main categories of people whose real incomes are adversely affected by inflation [8]

(i) ***Those who lack the bargaining power*** *to increase their nominal incomes in accordance with the inflation rate ✓ or– the unemployed, the un-unionised, pensioners, and small business owners. Inflation therefore tends to hit the weakest in society hardest. ✓*

(ii) ***The ones hold money ✓ -because inflation reduces the purchasing power of that money*** *- those with money in their purses or their bank accounts, which is all of us. But again, it is the poorest in society who are worst hit by this effect, because the greatest proportion of their wealth lies in the money they receive as weekly or monthly wages ✓. By contrast, a significant proportion of the wealth of richer people is in goods and assets (homes, land, shares, etc), the nominal*

value of which normally keeps pace with inflation. In that way, the wealth of richer people is better protected against inflation.

(iii) ***Creditors*** ✓ *– people who have lent money to others. Because inflation means that the purchasing power of money steadily declines over time, creditors are repaid in money units of lower purchasing power. This effect, however, happens only if interest rates are not adjusted upwards to compensate for this loss, as they often are. Only when inflation causes a decline in the real interest rate on debt* ✓ *(roughly determined as the nominal interest rate minus the inflation rate) do creditors lose as a result of inflation or, for that matter, do debtors gain from inflation.*

(iv) The fourth category of ***people includes all of us****, to the extent that inflation causes us to fall into a higher income tax bracket. South Africa, like most countries in the world, has a progressive income tax system, meaning that on successive additions to income (called brackets) a higher percentage of income tax is levied. Because inflation raises the nominal value of our income, it can force us into higher tax brackets even while the real value of our income remains the same (this is known as the "bracket creep")* ✓✓*.*

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SECTION A COMPULSORY QUESTION

QUESTION 1

1.1 What is the operational instrument of monetary policy in South Africa? [1]

-repo rate

1.2 Distinguish between fiscal and monetary policy [4]

-Fiscal policy is a stabilisation policy done by government through adjusting government spending and taxation and ultimately the budget balance, whilst monetary policy is done by the central bank through adjusting 'interest rates'.

1.3 Distinguish between risk structure and term structure of interest rates [4]

-Risk structure of interest is the relationship among different interest rates on bonds with same term to maturity ✓✓

-term structure of interest rates is the relationship between interest rates on bonds with different terms to maturity. This can be plotted on the yield curve ✓✓

1.4 Define the yield curve [2]

-A yield curve is a line that plots the interest rates, at a set point in time, of bonds having equal risk but differing terms to maturity ✓✓

1.5 Explain how the segmented markets theory suggests that the yield curve generally slopes upwards [3]

- segmented markets theory suggests that demand for long-term bonds will have lower prices and higher interest rates and hence the yield curve will typically slope upwards ✓✓✓

1.6 List two ways in which financial intermediaries can reduce transaction costs [2]

- transaction costs are the time and money spent in carrying out financial transactions. Financial intermediaries reduce the transaction costs as they have the expertise and can take advantage of economies of scale ✓*. The low cost allows financial intermediaries to provide customers with liquid services, i.e. services that make it easier to conduct transactions.* ✓

1.7 (i) What is asymmetric information [2]

- a situation that arises when one party's insufficient knowledge about the other party involved in a transaction makes it impossible to make accurate decisions when conduction the transaction ✓✓

(ii) Explain the meaning of both adverse selection and moral hazard. What is the important difference between the two? [4]

- Adverse selection – is an asymmetric information problem that occurs before that transaction while moral hazard is an asymmetric information problem that occurs after the transaction ✓✓✓✓

1.8 Keynes identified three motives (factors) behind the demand for money. List these three factors, and explain based on each of them how they predict that both nominal interest rates and nominal income affect demand for money [10]

Transactionary motive ✓*. People engage in their daily activities like paying rent, bills, transport costs, engaging in projects and other businesses* ✓*. To conduct these transactions, individuals will have to hold money, hence the transactionary motive. Under this motive, money serves the function as a medium of exchange, and therefore it's an active balance. Demand for money for transactionary balances is relatively interest inelastic, but more income elastic.* ✓*The theory argues that the higher the national income, the more transactions are done, hence more money has to be held as transactionary balances* ✓*. Therefore, transactionary demand for money is a positive function of national income.*

Precautionary motive ✓*. Individuals also set money aside for unforeseen contingencies like unemployment and sicknesses. These are balances held by individuals for precautionary reasons, hence precautionary motive. Empirical evidence backing the theory also states that precautionary balances are positively related to national income.* ✓ *Money demanded for precautionary reasons is also an active balance.*

Speculative motive ✓*. Individuals also hold money in speculation on favourable changes in the interest rates. Money is demanded as a store of value under this motive, hence a passive balance. Interest rates, an opportunity cost for holding money,*

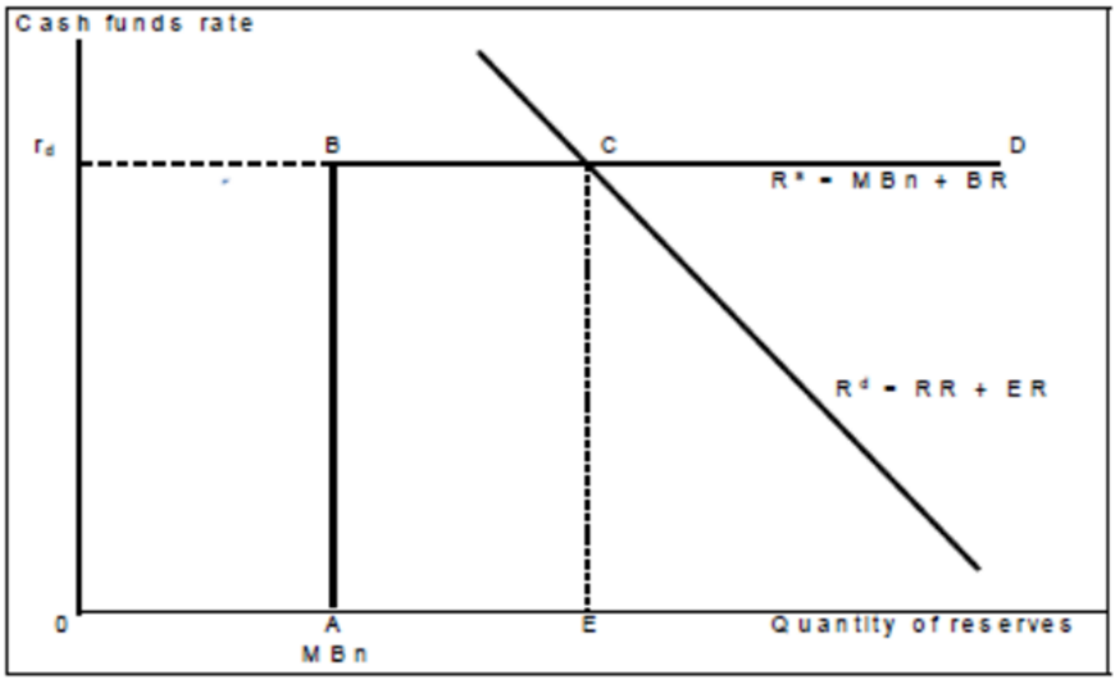
are negatively related to demand for money for speculative reasons as holding money in periods of high interest rates will result in higher opportunity costs ✓.

These motives put together, explains the demand for money. Demand for money is inversely related to interest rates and positively related to national income. The following functions explains the demand for money:

$$\frac{M^d}{P} = L \underset{-\ +}{(i, y)}$$

Where i are interest rates and Y is national income ✓✓. From the model, the conclusion was drawn that money demand is unpredictable and unstable.

1.9 The below figure is a graphical representation of the market for reserves in South Africa



(i) Give the components of both supply and demand for reserves [4]

Supply for reserves = Borrowed Reserves and Non-borrowed reserves ✓✓

Demand for reserves = Required reserves and Excess Reserves ✓✓

(ii) Explain briefly how the SARB uses open market operations as well as borrowed reserves to conduct monetary policy [4]

-SARB buys or sells treasury bills in the market as part of open market operations. ✓✓

-if it purchases treasury bills, borrowed reserves in the monetary system increase, whereas selling of treasury bills reduces borrowed reserves ✓✓

SECTION B (OPTIONAL QUESTIONS)

Question 2

2.1 What is the primary benefit of holding excess reserves by a bank? [2]

-excess reserves act as an insurance against the costs associated with deposit outflows ✓✓

2.2 (i) Define bank panic [3]

-is when depositors withdraw their money from banks due to loss of confidence and panic leading to the simultaneous failure of many banks, as during a financial crisis. ✓✓✓

2.3 List the five elements of inflation targeting [5]

(i) Public announcement of medium-term numerical objectives for inflation ✓

(ii) An institutional commitment to price stability, as the long-run goal of monetary policy and a commitment to achieve the inflation goal. ✓

(iii) An information-inclusive approach in which many variables are used in making decisions about monetary policy ✓

(iv) Increased transparency of the monetary policy strategy through communication with public markets about the plans and objectives of monetary policy ✓.

(v) Increase accountability of the central bank for attaining its inflation objectives ✓.

Question 3.

3.1 Explain why the IS-LM model may be regarded as unrealistic. Focus particularly on the exogenous and endogenous variables in the IS-LM model and on how money supply is determined in South Africa. Which additional assumption on the LM would improve the relevance of the ISLM model for monetary policy in South Africa? [10]

Please Note: The question is no-longer part of ECS3701 module

3.2 Explain how each of the following affects money supply in South Africa [10]

(i) changes in borrowed reserves – *positive relationship* ✓ *+ reason* ✓

(ii) changes in non-borrowed reserves- *positive relationship* ✓ *+ reason* ✓

(iii)changes in excess reserves- *negative relationship* ✓ *+ reason* ✓

(iv)changes in required reserve ratio- *negative relationship* ✓ *+ reason* ✓

(v)changes in currency holdings-*negative relationship* ✓ *+ reason* ✓

Question 4

4.1 (i) Define the aggregate price level and list two ways in which it is measured in South Africa [3]

-Aggregate price level can be defined as the price of a basket of goods and services ✓

-it is measured using the CPI ✓ and PPI ✓ in South Africa

(ii) How is the M3 monetary aggregate determined in South Africa? List all the components [5]

-M3 is the most comprehensive measure of money ✓

-M3 is an extension of M2, and includes, in addition to short- and medium-term deposits ✓*, long-term deposits held by the private domestic sector with monetary institutions* ✓*. Basically, M3 includes all the deposit liabilities of the monetary banking sector* ✓*, monetary as well as non-monetary deposits* ✓

4.2 Price Stability is the goal of many central banks. List and explain any other four goals of monetary policy [12]

High employment and output stability

High employment is important for two reasons:

1. *The alternative (unemployment) causes much human misery*
2. *High unemployment has idle workers and idle resources resulting in a loss of output (lower GDP)*

Economic growth- *The goal of steady economic growth is closely related to the high employment goal as it promotes capital investment. Policies can be specifically aimed at promoting economic growth by directing firms to invest and encouraging people to*

save, providing firms with more funds to invest. This approach is stated in the supply-side economic policies, by providing tax incentives for firms to invest and taxpayers to save more.

Stability of financial markets- F*inancial crises can interfere with the ability of financial markets to channel funds to people with productive investment opportunities leading to economic contraction.*

Interest rate stability- *Interest rate stability is desired as fluctuations in interest rates can create uncertainty making it harder to plan. Fluctuations also cause uncertainty for financial institutions. Increasing interest rates produces large capital losses on long-term bonds and mortgages causing institutions to fail.*

Stability in foreign exchange markets- *Preventing large changes in the value of a currency makes it easier for firms and individuals purchasing or selling goods abroad to plan ahead, especially for countries dependent on foreign trade.*

Any 4. Maximum of 3 marks per objective

Question 5

5.1 Is the South African Reserve Bank (SARB) independent? Explain your answer based on the two types of independence: goal independence and operational (instrument) independence [10]

South Africa currently uses an inflation targeting policy framework ✓ in which monetary policy seeks to keep the inflation rate within a predefined target range (3-6%) ✓. This inflation target is set in consultation between the Governor of the SARB and the Minister of Finance ✓. This means that the SARB does not have goal independence ✓. This is not necessarily bad. Inflation can only be beaten when it has the support of all of government, firms and labour ✓.

The SARB does, however, have operational (instrument) independence ✓✓, that is, the choice of instruments and the autonomy to adjust such instruments in monetary policy decisions aimed at achieving the target ✓. The SARB's decision-making process, as far as the execution of monetary policy is concerned, is independent of political interference. ✓ The SARB is accountable to Parliament via the Minister of Finance ✓.

5.2 Briefly explain the nature of time-inconsistency problem in monetary policymaking. What is role of nominal anchor in this context [5]

-Time inconsistency is when policymakers abandon a long-term goal in pursuance of a short-term goal✓✓✓. Nominal anchor, which is the use of a nominal variable to tie down prices, can control time-inconsistency problem✓✓.

5.3 List any five (5) main functions of South African Reserve Bank [5]

- Issue cash or currency✓

- Interbank obligations✓

- Lender of last resort✓

-Implementation of monetary (and exchange rate) policy✓

-Banker for government✓

-Custodian of the greater part of South Africa's gold and other foreign exchange reserves✓

ECS3701 OCT/NOV 2014 MEMORANDUM

SECTION A (COMPULSORY QUESTION)

QUESTION 1

1.1 What is the difference between a bond and a stock? [2]

*- A stock (also called a share) is **a claim** on the issuer's future income or assets whilst a bond is **a debt** that promises to make payments periodically for a specific period of time.* ✓

-a stock earns dividends, whilst it is not a liability to the institution as it may defer payments, however, bonds earn interest which is a liability and, if deferred, may attract penalties and liability will accumulate. ✓

1.2 Explain how financial intermediaries can lower transaction costs in financial markets [3]

- transaction costs are the time and money spent in carrying out financial transactions ✓*. Financial intermediaries reduce the transaction costs as they have the expertise and can take advantage of economies of scale* ✓*. The low cost allows financial intermediaries to provide customers with liquid services, i.e. services that make it easier to conduct transactions.* ✓

1.3 Give two goals of financial regulation [2]

- Increasing information available to investors ✓

- To ensure the soundness of the financial ✓

1.4 What is difference between the capital market and money market [2]

*-The **money market is** a financial market in which only short-term debt instruments are traded* ✓*. They are more widely traded and so tend to be more liquid. Short term instruments also have smaller fluctuations making them safer instruments.*

*-The **capital markets** is the market is the market in which longer-term debt and equity instruments are traded* ✓

1.5 How is the M2 monetary aggregate measured in South Africa? [4]

-M2 is a broader definition of money. It consists of M1 ✓ plus deposits, which are almost money or "near money". Apart from coins, banknotes and demand deposits (M1: money or narrow money), it also includes short-term ✓ and medium-term deposits ✓ (including savings deposits, savings bank certificates and "share" investments) held by the private domestic sector at monetary institutions, commercial banks and savings institutions ✓

1.6 Calculate the simple credit multiplier if the required reserve ratio is 5% [2]

$$m = \frac{1}{rr}$$

$$m = \frac{1}{0.05} = 20$$

1.7 List five advantages of inflation targeting [5]

-It has the potential to reduce political pressures on central banks. ✓

- It is readily understood by the public ✓

- highly transparent due to regular communication with the public ✓

- There is the tendency towards increased accountability ✓

- Often, once inflation has been reduced, it will stay down even during subsequent cyclical expansions ✓

1.8 What are the three primary functions of money? [3]

-Medium of exchange ✓

-Unit of account ✓

-store of value ✓

1.9 Explain the difference between real and nominal interest rates [3]

*-**Nominal interest rates** – Interest rate that makes no allowance for inflation ✓.*

***-Real interest rate** – The interest rate that is adjusted by subtracting the expected changes in the price level (inflation) so it more accurately reflects the true cost of borrowing ✓✓*

1.10 Define a financial crisis [3]

- A major disruption in financial markets ✓ that is characterised by sharp declines in asset prices ✓ and the failures of many financial and non-financial firms. ✓

1.11 List two assets and two liabilities of a commercial bank [4]

Assets	Liabilities
Reserves ✓	Deposits ✓
Loans ✓	Bank Capital ✓
Securities ✓	

1.12 What is interest rate risk? [2]

- the riskiness of earnings and returns that is associated with changes in interest rates ✓✓

1.13 Explain how the return on a bond can be calculated (Hint: Write down the formula) [5]

$$R = \frac{C+P_{t+1}-P_t}{P_t} \checkmark\checkmark\checkmark$$

Return on a bond is equal the sum of capital gain and coupon payments expressed as a fraction of the price of the bond ✓✓

SECTION B (OPTIONAL QUESTIONS)

Question 2

2.1 Explain how the lemons problem might arise in securities market [5]

- Lemons problem arise in securities markets when a potential buyer of securities can't distinguish between good firms with high profit and low risk and bad firms with low profit and high risk. ✓✓ The buyer will only be willing to pay a price that reflects the average quality of firms issuing securities. ✓

-The managers of good firms know their securities are undervalued and will not want to sell them at the average price, only the bad firms will accept the average price ✓. One buyer will not want to buy securities from bad firms and will decide not to purchase securities resolution in a securities market that functions poorly. ✓

2.2 Explain what is meant by an asset price bubble, and how the bursting of such a bubble can contribute to a financial crisis [6]

-Asset price bubble is when an asset is overvalued or overpriced, that is, when the price quoted in the market is higher than the value of the asset. ✓✓

-When that asset bubble burst, it will result in liquidation and insolvency of many financial and non-financial institutions ✓✓

-this is because institutions would be having higher liabilities, whilst the price of assets have decreased. ✓✓

2.3 Explain the assumptions and predictions of expectations theory and how well it explains the three empirical observations of the yield curve [9]

-The theory explains the following proposition: The interest rate on a long-term bond will equal an average of the short-term interest rates that people expect to occur over the life of the long-term bond ✓

-The key assumption behind the theory is that buyers of bonds do not prefer bonds of one maturity over another, so they will not hold any quantity of a bond if its expected return is less than that of another bond with a different maturity ✓

-bonds are perfect substitutes ✓

- The expectations theory explains that the term structure of interest rates changes at different times. ✓

*-When the **yield curve is sloping upward**, the theory suggests that short-term interest rates are expected to rise in the future. When the long-term interest rate is higher than the current short-term rate, the average of future short-term rates is expected to be higher than the current short term rate.* ✓

*-When the **yield curve is downward sloping**, the average of future short-term interest rates is expected to fall, on average, in the future* ✓.

*-When the **yield curve is flat** does the expectation theory suggest that short term interest rates will not change.* ✓

-The expectation theory also explains:

Fact 1: A rise in short-term rates will raise people expectations of future short-term rates. Because long-term rates are the average of the expected future short-term rates, a rise in short-term rates will also raise long-term rates. ✓

Fact 2: When short-term rates are low, people generally expect them to rise to a normal level in the future, and the average of future expected short-term rates is high

relative to the current short-term rate. Therefore, long-term interest rates will be substantially higher than the current short term rates and the yield curve would have an upward slope. Conversely, the opposite would happen if current short-term rates were high. ✓

-The expectations theory provides a simple explanation of the behavior of the term structure. It does have major shortcomings in explaining fact 3

Question 3

3.1 Discuss the advantages and disadvantages of central bank independence [10]

Advantages

-frees the central bank from political influence ✓

-Central Bank's credibility will increase, and confidence in the banking sector will increase ✓

-reduce time-inconsistency problems which might emanate from pressure by vote-buying decisions by politicians ✓

-accountability increases ✓

-transparency will also increase ✓

Disadvantages

-objectives like price stability are not easily achieved without support from the government ✓

-may deviate from public goal role and commercialise ✓

-goals may conflict with government's, which may hinder policy implementations and progress ✓

3.2 Explain the three ways in which SARB ensures a liquidity shortage in the market for reserves [6]

-The SARB carefully estimates the banks' overall liquidity requirement on a daily, weekly and monthly basis and takes account of all factors that may affect the liquidity shortage. A relatively large amount of liquidity requirements arises from maturing short-term repo transactions. Once estimates have been made, the SARB offers a number of securities on auction at varying interest rates. The SARB offers various securities and maturities in its open-market operations. Banks estimate their liquidity shortage for the coming week and tender for the amounts and interest rates, which are then allocated in ascending order of the interest rates bid (the higher price bids

are allocated first). The securities are auctioned weekly, normally on Wednesdays. The interest rate on bids is generally below that of the repo rate. ✓✓

-To drain liquidity from the market, the SARB also sells longer-term reverse repos from its monetary policy portfolio. Reverse repo transactions are transactions in which financial assets are sold, say, today, and then repurchased at a later date, and where the interest rate is fixed on the date of the initial sale. The SARB also conducts outright sales of securities ✓✓

-The SARB also uses foreign exchange swap transactions (e.g. swapping US dollars for rand) to temporarily drain rand liquidity from the market. These swaps are short term and are used to smooth intramonth fluctuations in liquidity. ✓✓

3.3 How does the SARB apply its accommodation policy to provide liquidity to the banking system? [4]

- To ensure that the repo rate remains effective, the SARB compels the banks to borrow a substantial amount of the liquidity requirement from the SARB ✓

-The liquidity requirement of banks is met at the main refinancing repo auctions that occur weekly. At these auctions, the SARB provides liquidity to the banks by means of repurchase agreements (repos) involving mainly government bonds, treasury bills, SARB debentures and Land Bank bills. Banks sell their securities to the SARB for a period of one week, in return for cash reserves. Banks pay the repo interest rate on these reserves ✓✓✓

Question 4

4.1 Discuss Keynes's liquidity preference theory, clearly explaining the three motives behind the demand for money. Also write Keynes's liquidity preference function [10]

Keynes' liquidity preference theory explains the motives behind which people hold (demand) money. Individuals prefer money as it is the most liquid asset, hence the term liquidity preference. Keynes (1936), explained three reasons (motives) by which individual prefer to hold money for. The three motives were transactionary motive, precautionary motive and speculative motive.

Transactionary motive ✓*. People engage in their daily activities like paying rent, bills, transport costs, engaging in projects and other businesses* ✓*. To conduct these transactions, individuals will have to hold money, hence the transactionary motive.*

Under this motive, money serves the function as a medium of exchange, and therefore it's an active balance. Demand for money for transactionary balances is relatively interest inelastic, but more income elastic.✓The theory argues that the higher the national income, the more transactions are done, hence more money has to be held as transactionary balances✓. Therefore, transactionary demand for money is a positive function of national income.

Precautionary motive✓. Individuals also set money aside for unforeseen contingencies like unemployment and sicknesses. These are balances held by individuals for precautionary reasons, hence precautionary motive. Empirical evidence backing the theory also states that precautionary balances are positively related to national income.✓ Money demanded for precautionary reasons is also an active balance.

Speculative motive✓. Individuals also hold money in speculation on favourable changes in the interest rates. Money is demanded as a store of value under this motive, hence a passive balance. Interest rates, an opportunity cost for holding money, are negatively related to demand for money for speculative reasons as holding money in periods of high interest rates will result in higher opportunity costs✓.

These motives put together, explains the demand for money. Demand for money is inversely related to interest rates and positively related to national income. The following functions explains the demand for money:

$$\frac{\boldsymbol{M^d}}{\boldsymbol{P}} = \boldsymbol{L}\ \begin{matrix}(\boldsymbol{i},\boldsymbol{y})\\ -\ +\end{matrix}$$

Where i are interest rates and Y is national income✓✓. From the model, the conclusion was drawn that money demand is unpredictable and unstable.

The interaction of the demand for money, as explained by the liquidity preference theory and money supply determines interest rates in the economy. These are the conditions brought forth by the theory

4.2 Explain how the repo rate affects output and price level through the credit channel of monetary policy [10]

-The monetary policy effect is represented as:

↓repo rate → ↑bank deposits → ↑bank loans →(↑Inv, ↑C) → ↑Y

-This channel operates, firstly, through bank lending. Certain borrowers will not have access to credit markets unless they borrow from banks. Expansionary monetary policy increases bank reserves and bank deposits, thus increasing the amount of loans available. This increase in loans will cause fixed capital formation and consumer spending to rise.

-A significant implication is that monetary policy through this channel will have a greater effect on those more reliant on bank loans, such as smaller firms, since larger firms have recourse to obtaining funds by issuing new share capital. As circumstances and restrictive regulatory frameworks change to allow banks greater ability to raise funds, the potency of this channel will be reduced.

Secondly, credit affects the balance sheets of households and firms and also arises from asymmetric information in credit markets:

↓repo rate → ↑price expectations → ↑cash flow → ↓adverse selection →

→ ↓moral hazard → ↑lending →(↑Inv, ↑C) → ↑Y

Detailed logical sequence of events will earn the student full marks.

Question 5

5.1 Provide a definition of inflation, and explain the difference between an inflationary impulse and an inflationary spiral [8]

-Inflation can be defined as a continuation of price increases whereby these increases feed on themselves ✓✓ – price increases leading to price increase. Hence inflation is a process rather than an event; it does not refer to a momentary (impulse), once-off increase in prices but to a spiral of sustained price increases. ✓✓

-Inflationary impulse is a once-off rise in the price of a good. More commonly referred to as a "first-generation inflation effect" ✓✓. But an inflationary impulse does not yet constitute inflation. Inflation is not a single once-off rise in the price of goods, but as a sustained spiral of price increases ✓✓.

5.2 Explain how the combination of an increase in international oil price and a depreciation in the South African Rand would impact domestic inflation [6]

-increase in oil price results in higher import bill, or simply put, higher cost of imports ✓.

-increase in cost of imports results in higher domestic prices ✓

-cost of transportation of increase, which is an increase in cost of production ✓

-depreciation of ZAR results in higher price of imports, hence higher cost of imported inputs ✓

-cost of production increase, and domestic prices increase ✓

-therefore, this combination results in high domestic inflation ✓

5.3 Discuss the costs of inflation on productivity [6]

-inflation results in higher costs of production through higher prices for inputs ✓

-subsequently, producers will cut on production ✓

-output per unit of capital will be lower due to lower production ✓

-output per unit of labour also decrease due to decrease in the quantity of units ✓

-hence productivity decrease. ✓

ECS3701 MAY/JUN 2015 MEMORANDUM

SECTION A (COMPULSORY QUESTIONS)

QUESTION 1 **[40 marks]**

1.1 Explain the difference between direct and indirect financing [2]

-direct financing- borrowers borrow funds directly from lenders in the financial markets by selling them securities ✓

-Indirect finance- financial intermediary stands between lender-savers and borrower-spenders and helps transfer funds from one to the other ✓

1.2 What is the difference between primary and secondary markets [2]

- a primary market is a financial market in which new issues of a security, such as a bond or stock, are sold to initial buyers by the corporation borrowing the funds ✓

- A secondary market is a financial market in which securities that have previously been issued can be resold ✓

1.3 Provide a definition of money [2]

-Money is anything that is generally accepted ✓ *as a means of payment or settling a debt* ✓

1.4 What is the difference between *commodity money, fiat money* and *e-money*?[3]

- commodity money is made up of precious metals or another valuable commodity ✓*, has intrinsic value, but its heavy and difficult to transport*

- fiat money is made up of paper currencies decreed by governments as legal tender ✓

- exists only in electronic form, such as debit cards, smart cards and e-cash. Faster and reduces need to carry around large amounts of currency ✓

1.5 How is the M3 monetary aggregate measured in South Africa. [5]

-M3 is the most comprehensive measure of money ✓

-M3 is an extension of M2, and includes, in addition to short- and medium-term deposits ✓*, long-term deposits held by the private domestic sector with monetary*

institutions ✓. Basically, M3 includes all the deposit liabilities of the monetary banking sector ✓, monetary as well as non-monetary deposits ✓

1.6 Define *yield to maturity* in the context of a coupon bond [3]

-yield to maturity is the rate that equates all future earnings of a coupon bond to its present value until the bond's maturity. ✓✓✓

1.7 Explain the effect of a perceived increase in the riskiness of holding Eskom bonds on the demand for RSA retail savings bonds [3]

-demand for RSA retail savings bonds will increase ✓. Holding everything else constant, if an assets risk rises relative to that of an alternative asset, its quantity demanded will fall ✓. While two assets average return may be the same, one asset may fluctuate making it riskier. Most people are risk-averse and are less likely to hold the riskier assets ✓.

1.8 Explain the difference between the risk structure of interest and term structure of interest rates. [4]

-Risk structure of interest is the relationship among different interest rates on bonds with same term to maturity ✓✓

-term structure of interest rates is the relationship between interest rates on bonds with different terms to maturity. This can be plotted on the yield curve ✓✓

1.9 Explain how government fiscal imbalances could lead to a financial crisis in an emerging economy [4]

-the financing of government spending can also put emerging markets into crisis. When governments face large fiscal imbalances and cannot finance their debt, they cajole or force banks to buy government debt ✓. Investors who feel the government cannot pay the debt, unload the bonds causing the value to plummet ✓. Bank who hold this debt face huge losses in their balance sheets and a decline in net worth ✓. With less resources, less lending occurs. A decline in bank capital may cause a bank panic and the banks may fail at the same time ✓.

The result of severe fiscal imbalances is a weakening of the banking system, which leads to a worsening of adverse selection and moral hazard problems. ✓

Maximum of 4 marks

1.10 What is the difference between adverse selection and moral hazard. Provide a clear example of each. [4]

-Adverse Selection – created by asymmetric selection before the transaction occurs ✓. It occurs when the potential borrows who are most likely to produce an undesirable outcome (bad credit risks) are the ones who most actively seek out loans and thus are likely to be selected causing lenders not to make any loans ✓.

-Moral Hazard - created by asymmetric selection after the transaction occurs ✓. It is the risk (hazard) that the borrower might engage in activities that are undesirable (immoral) from a lenders point of view as the loan is less likely to be paid back ✓.

1.11 Explain how the lemons problem might arise in securities markets. How does this explain that marketable securities are not the primary source of financing for businesses? [5]

- Lemons problem arise in securities markets when a potential buyer of securities can't distinguish between good firms with high profit and low risk and bad firms with low profit and high risk. ✓✓ The buyer will only be willing to pay a price that reflects the average quality of firms issuing securities. ✓

-The managers of good firms know their securities are undervalued and will not want to sell them at the average price, only the bad firms will accept the average price ✓. One buyer will not want to buy securities from bad firms and will decide not to purchase securities resolution in a securities market that functions poorly. ✓

1.12 Explain what is meant by time-inconsistency problem in the context of monetary policy making [3]

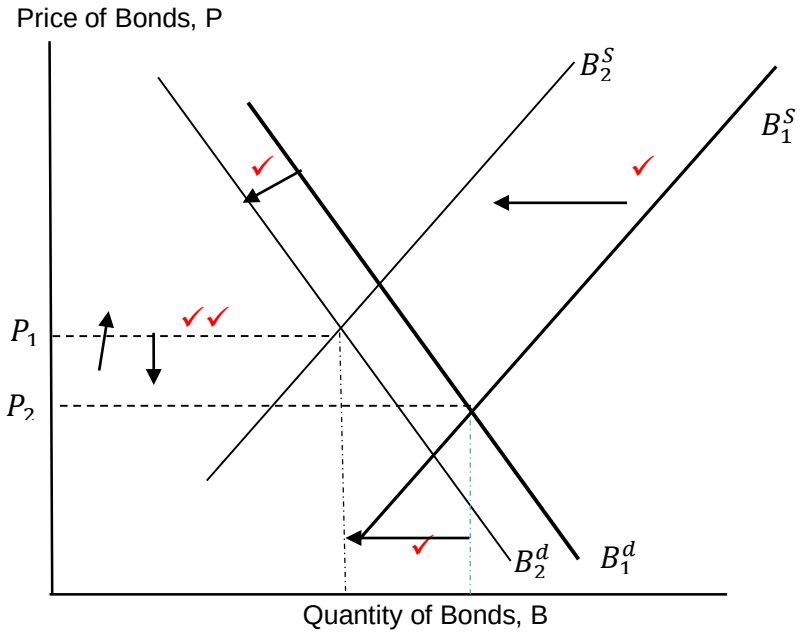
- The problem that occurs when monetary policy makers conduct monetary policy in a discretionary way and pursue expansionary policies that are attractive in the short run but lead to bad long-run outcomes ✓✓.
-for example, under pressure from high unemployment, the central bank may abandon price stability policies in pursuance of high unemployment policies ✓

SECTION B (OPTIONAL QUESTIONS)

Question 2

2.1 Using the Theory of Asset demand, explain how a recession (business cycle contraction) would affect the supply and demand for bonds. Also indicate how you expect the equilibrium price, quantity and interest rate to change. (Hint: Draw a graph)

[10]



-Maximum of 5 marks on diagram for correcting shifting of curves and changes in price and quantity of bonds. ***Wrong labelling of the axis will attract negative marking****.*

-supply for bonds would decrease as businesses are less likely to borrow as there are less investment opportunities, less bonds will be sold at a given price and the supply curve for bonds shifts to the left. ✓

- Wealth is therefore likely to decrease, telling us that the demand for bonds will decrease as well. The demand curve shifts leftwards ✓

-therefore, a recession has an uncertain effect on the price of bonds ✓ *and interest rates* ✓*whilst the quantity of bonds will certainly decrease* ✓*.*

2.2 Explains the assumptions and predictions of the liquidity premium theory of term structure and how well it explains the three empirical observations of the yield curve [10]

Assumptions and predictions:

- the interest rate on a long-term bond will equal an average of short-term interest rates expected to occur over the life of the long-term bond plus a liquidity premium that responds to supply and demand conditions for that bond ✓✓✓

-bonds of different maturities are substitutes, meaning that the expected return on one bond does influence the expected return on another bond with a different maturity, but allows an investor to prefer one bond maturity over another. In other words, bonds with different maturities are assumed to be substitutes but not perfect substitutes ✓✓

-investors have a preference for bonds of one maturity over another, a preferred habitat in which they tend to invest ✓✓

Explanation of the three empirical observations of the yield curve:

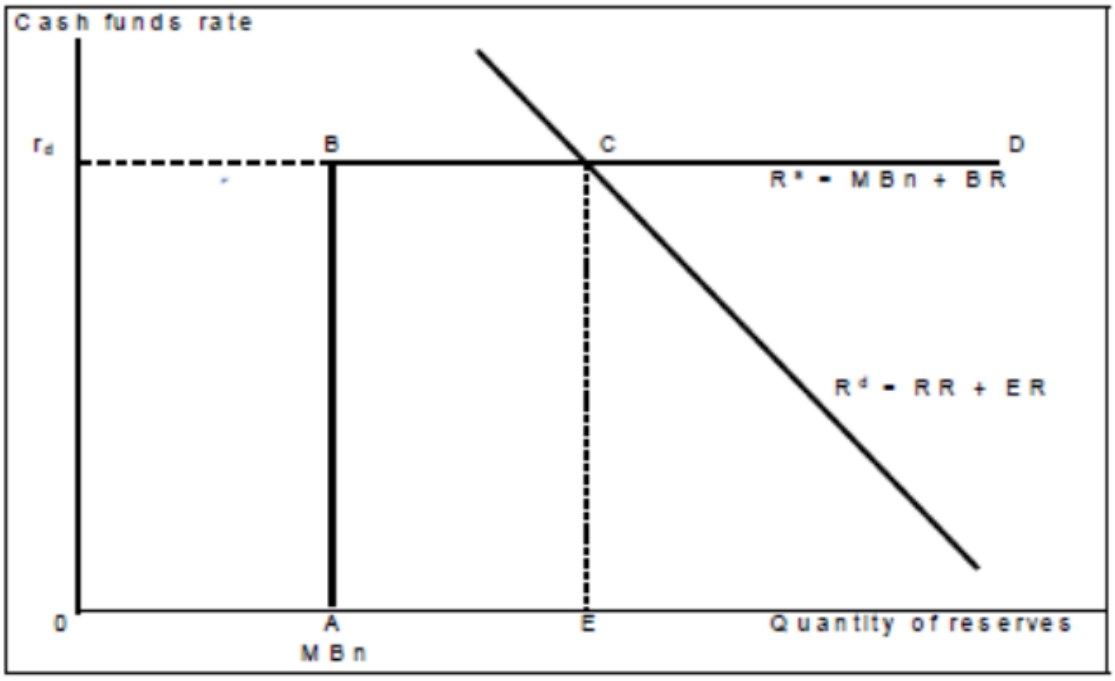
*-**Fact 1**: A rise in short-term interest rates indicates that short-term interest rates will, on average, be higher in the future and the first term implies that long-term interest rates will rise along with them.* ✓

***-Fact 2:** Because investors generally expect short-term interest rates to rise to some normal level when they are low, the average of future expected short-term rates will be high relative to the current short-term rate. Conversely, the opposite would happen if current short-term rates were high.* ✓

***-Fact 3:** Even if short term interest rates are expected to stay the same on average in the future, long-term interest rates will be above short term interest rates and yield curves will typically slope upwards* ✓

Question 3

3.1 Explain and graphically illustrate how the market for reserves operates in South Africa. Also explain in principle how the tools of monetary policy fit into this framework (i.e how the South African Reserve Bank (SARB) uses open market operations to engineer a liquidity shortage, and how SARB accommodates this shortage through borrowed reserves) [15]



8 marks for correctly drawn diagram ✓✓✓✓✓✓✓✓

1. *In South Africa, the SARB actively maintains a liquidity requirement by means of open-market operations which compel banks to borrow a substantial amount from the SARB (BR) at the repo rate (ie the SARB maintains a money market shortage).The SARB is constantly active in the money market to drain excess liquidity in order to force a liquidity shortage.* ✓

2. *The SARB carefully estimates the banks' overall liquidity requirement on a daily, weekly and monthly basis and takes account of all factors that may affect the liquidity shortage. A relatively large amount of liquidity requirements arises from maturing short-term repo transactions. Once estimates have been made, the SARB offers a number of securities on auction at varying interest rates. The SARB offers various securities and maturities in its open-market operations. Banks estimate their liquidity shortage for the coming week and tender for the amounts and interest rates, which are then allocated in ascending order of the interest rates bid (the higher price bids are allocated first). The securities are auctioned weekly, normally on Wednesdays. The interest rate on bids is generally below that of the repo rate.* ✓✓

3. *To drain liquidity from the market, the SARB also sells longer-term reverse repos from its monetary policy portfolio. Reverse repo transactions are*

transactions in which financial assets are sold, say, today, and then repurchased at a later date, and where the interest rate is fixed on the date of the initial sale. The SARB also conducts outright sales of securities. ✓✓

4. *The SARB also uses foreign exchange swap transactions (e.g. swapping US dollars for rand) to temporarily drain rand liquidity from the market. These swaps are short term and are used to smooth intramonth fluctuations in liquidity.* ✓✓

5. *Another instrument that supplements open-market operations is the tax and loan accounts of the government held with private banks, instead of at the SARB. Their operation is best explained in terms of an example. Assume a private company pays its tax bill to the government. If the tax is deposited into the government's account at the SARB, it then causes a destruction of the reserves of banks. However, should this amount be deposited into a tax and loan account held at a private bank, the banks' reserves remain unaffected. The SARB can also transfer deposits from its tax and loan accounts to the government's account held at the SARB, which will then cause a reduction in bank reserves. The tax and loan accounts serve to alleviate large fluctuations in liquidity arising out of the tax flows from the private sector to the government. They also have the advantage of earning interest revenue for the government.* ✓✓

Maximum of 7 marks for explanation

3.2 List five (5) official functions of the South African Reserve Bank [5]

- Issue cash or currency ✓
- Interbank obligations ✓
- Lender of last resort ✓
-Implementation of monetary (and exchange rate) policy ✓
-Banker for government ✓
-Custodian of the greater part of South Africa's gold and other foreign exchange reserves ✓

QUESTION 4

4.1 Discuss why the price stability goal is desirable in South Africa, in spite of other pressing economic problems [15]

-In the long-run, price stability promotes economic growth, financial and interest rate stability. In the short-run, price stability often conflicts with the goals of output stability and interest rate stability such as when the economy is expanding and unemployment is falling, the economy may become overheated, leading to a rise in inflation. A central bank would prevent this by raising interest rates initially causing output to fall controlling inflation but increase interest-rate instability ✓✓✓✓✓

- As no inconsistency exists between achieving price stability on the long run and the natural rate of unemployment, the mandate is not very different if maximum output is defined as the natural rate of unemployment, in theory. In practice, there is a substantial difference could exist, as the public and government may believe that a hierarchical mandate puts too much emphasis on inflation control and not enough on stabilizing output. ✓✓✓✓✓

-As low and stable inflation promotes economic growth, central banks realize that price stability should be the primary long-run goal, but not a short term goal. Central banks can focus on reducing output fluctuations by allowing inflation to deviate from the long-run goal for short periods. ✓✓✓✓✓

4.2 Give three (3) advantages and two (2) advantages of inflation targeting [5]

Advantages

-It has the potential to reduce political pressures on central banks. ✓

- It is readily understood by the public ✓

- highly transparent due to regular communication with the public ✓

- There is the tendency towards increased accountability ✓ *(Any 3)*

Disadvantages

- Delayed signaling ✓

- Too much rigidity ✓

- Potential for increase output fluctuations ✓

- Low economic growth ✓ *(Any 2)*

Question 5

5.1 Explain how price controls could be used to fight inflation, but why it could have serious detrimental side effects [6]

- The authorities can institute price controls, whereby they fix prices by law ✓. However, this can lead to the development of black markets ✓, reduces supply if the fixed price does not allow sufficient cost recovery (all the shops go empty, as happened in Zimbabwe) ✓, stifles competition and cannot do anything about the prices of imported goods ✓. Moreover, its inflation-dampening effect tends to be short-lived, nullified by accelerated inflation once the price controls are lifted again ✓.

5.2 Discuss the costs of inflation on productivity [6]

-inflation results in higher costs of production through higher prices for inputs ✓

-subsequently, producers will cut on production ✓

-output per unit of capital will be lower due to lower production ✓

-output per unit of labour also decrease due to decrease in the quantity of units ✓

-hence productivity decrease. ✓

ECS3701 OCT/NOV 2015 MEMORANDUM (ENGLISH)

SECTION A (COMPULSORY QUESTIONS)

Question 1 (40 marks)

1.1 List the three monetary policy instruments used by the South African Reserve Bank. [3]

-Accommodation policy (repo rate) ✓

-open market operations ✓

-reserve requirement ratio ✓

1.2 Differentiate between a security and a bond. [4]

*- A security (also called a financial instrument) is **a claim** on the issuer's future income or assets whilst a bond is **a debt** that promises to make payments periodically for a specific period of time.* ✓✓

-a security earns dividends, whilst is not a liability to the institution as it may defer payments, however, bonds earn interest which is a liability and, if deferred, may attract penalties and liability will accumulate. ✓✓

1.3 What is a financial crisis? [3]

- A major disruption in financial markets ✓ *that is characterised by sharp declines in asset prices* ✓ *and the failures of many financial and non-financial firms.* ✓

1.4 Define nominal anchor [2]

-a nominal variable such as the inflation rate, an exchange rate, or the money supply ✓ *that monetary policy makers use to tie down the price level* ✓*.*

1.5 Explain time-inconsistency problem [2]

-The problem that occurs when monetary policy makers conduct monetary policy in a discretionary way and pursue expansionary policies ✓ *that are attractive in the short run but lead to bad long-run outcomes* ✓

1.6 Secondary markets can be organized through the methods of exchange and over-the-counter (OTC) markets. Define these two methods. [2]

-exchanges is conducted through centralised locations where buyers and sellers of securities meet to conduct trades. ✓

-OTC market is a market in which dealers at different locations have an inventory of securities ready to buy or sell 'over-the-counter' to anyone who comes to them and is willing to accept their prices ✓

1.7 Explain in detail how financial intermediaries promote economic efficiency by performing the following functions: (Hint your answer must be in the context of financial intermediaries)

(i) Lower transaction costs [2]

- transaction costs are the time and money spent in carrying out financial transactions. Financial intermediaries reduce the transaction costs as they have the expertise and can take advantage of economies of scale ✓*. The low cost allows financial intermediaries to provide customers with liquid services, i.e. services that make it easier to conduct transactions.* ✓

(ii) Asymmetric information [8]

- Asymmetric information is when one party does not know enough about the other party to make accurate decisions ✓✓*. Lack of information creates problems on two fronts:*

1. Adverse Selection – created by asymmetric selection before the transaction occurs ✓*. It occurs when the potential borrows who are most likely to produce an undesirable outcome (bad credit risks) are the ones who most actively seek out loans and thus are likely to be selected causing lenders not to make any loans* ✓*.*

2. Moral Hazard- created by asymmetric selection after the transaction occurs ✓*. It is the risk (hazard) that the borrower might engage in activities that are undesirable (immoral) from a lenders point of view as the loan is less likely to be paid back* ✓*. Financial intermediaries are better equipped to than individuals to screen out the bad credit risks from the good ones reducing the losses resulting from adverse selection* ✓✓*.*

1.8 What is financial innovation? Mention one advantage and one disadvantage of financial innovation and give one example of financial innovation. [4]

***Definition**: Financial Innovation is when an economy introduces new types of financial products.* ✓

***One advantage**: financial system becomes more efficient. Convenience in which transaction can be done. It saves time in which transaction can be done. Money and funds becomes easily accessible. Marks may be awarded to any valid point a student lists. Maximum mark is 1.* ✓

***One disadvantage**: it may result in financial crisis. May increase the risky and exposure to risk in conducting financial transactions. Marks may be awarded to any valid point a student lists. Maximum mark is 1.* ✓

***One example**: introduction of ATMs. Introduction of new types of loans. Introduction if debit cards in place of cheque books. Marks may be awarded to any valid point a student lists. Maximum mark is 1.* ✓

1.9 Define the following terms:

(a) Money Supply- *money supply is defined as anything that is generally accepted* ✓ *in payment for goods or services or in the repayment of debts* ✓

(b) Business Cycle- *The business cycle is the fluctuation in economic activity* ✓ *that an economy experiences over a period of time* ✓*. A business cycle is basically defined in terms of periods of expansion or recession*

(c) Aggregate Income- *also known as GDP. It is the total value of a final goods and services produced in a country, in a given time.* ✓✓

(d) Inflation- *persistent and continuous rise* ✓ *in the general price level* ✓*.*

(e) Monetary theory- *The theory that relates the changes in the quantity of money* ✓ *to changes in economic activity.* ✓

SECTION B (OPTIONAL QUESTIONS)

Answer **any three** (3) of the following four questions (20 marks each)

Question 2 [20 marks]

2.1 Between 1986 and 1990, South Africa adopted monetary targeting in its monetary policy framework, explain why monetary targeting was abandoned [10]

- The successful application of monetary guidelines as an intermediate instrument of monetary policy is based on two assumptions. The first is that there is a stable relationship between nominal income (Y) and money stock (M). The second is that the causality runs from M (the policy instrument) to Y. After the 1980s, these assumptions were increasingly questioned, internationally and in South Africa, both on theoretical and empirical grounds. ✓✓✓✓

- Empirical evidence in the case of South Africa increasingly confirmed that the previous direct relationship between aggregate spending and the money supply had changed ✓

-The rise in monetary transmission mechanism made monetary targeting complicated ✓

-There was also a growing consensus that money is mainly endogenous – in other words, it is determined by the private nonbank sector, whereas the monetary targeting is premised on the belief that money is exogenous ✓✓

-change of focus from monetary targeting to pursue inflation targeting which is more effective in controlling price stability and the value of the rand. ✓✓

-page 76 of the study guide gives more detailed explanation, here in the memo, only the important points are listed.

2.2 List the five elements of inflation targeting [5]

(i) Public announcement of medium-term numerical objectives for inflation ✓

(ii) An institutional commitment to price stability, as the long-run goal of monetary policy and a commitment to achieve the inflation goal. ✓

(iii) An information-inclusive approach in which many variables are used in making decisions about monetary policy ✓

(iv) Increased transparency of the monetary policy strategy through communication with public markets about the plans and objectives of monetary policy ✓.

(v) Increase accountability of the central bank for attaining its inflation objectives ✓.

2.3 List five basic goals of monetary policy [5]

(i) High employment and output stability ✓

(ii) Economic growth ✓

(iii) Stability of financial markets ✓

(iv) Interest rate stability ✓

(v) Stability in foreign exchange markets ✓

And mainly price stability ✓

Question 3 (20 marks)

3.1 Explain in detail, how the motives, under the Keynes' liquidity preference theory, predicts that both real income and nominal interest rate affect the demand for money. [10]

Keynes' liquidity preference theory explains the motives behind which people hold (demand) money. Individuals prefer money as it is the most liquid asset, hence the term liquidity preference. Keynes (1936), explained three reasons (motives) by which individual prefer to hold money for. The three motives were transactionary motive, precautionary motive and speculative motive.

Transactionary motive ✓. *People engage in their daily activities like paying rent, bills, transport costs, engaging in projects and other businesses* ✓. *To conduct these transactions, individuals will have to hold money, hence the transactionary motive. Under this motive, money serves the function as a medium of exchange, and therefore it's an active balance. Demand for money for transactionary balances is relatively interest inelastic, but more income elastic.* ✓*The theory argues that the higher the national income, the more transactions are done, hence more money has to be held*

as transactionary balances ✓. Therefore, transactionary demand for money is a positive function of national income.

Precautionary motive ✓. Individuals also set money aside for unforeseen contingencies like unemployment and sicknesses. These are balances held by individuals for precautionary reasons, hence precautionary motive. Empirical evidence backing the theory also states that precautionary balances are positively related to national income. ✓ Money demanded for precautionary reasons is also an active balance.

Speculative motive ✓. Individuals also hold money in speculation on favourable changes in the interest rates. Money is demanded as a store of value under this motive, hence a passive balance. Interest rates, an opportunity cost for holding money, are negatively related to demand for money for speculative reasons as holding money in periods of high interest rates will result in higher opportunity costs ✓.

These motives put together, explains the demand for money. Demand for money is inversely related to interest rates and positively related to national income. The following functions explains the demand for money:

$$\frac{M^d}{P} = L \underset{-\ +}{(i, y)}$$

Where i are interest rates and Y is national income ✓✓. From the model, the conclusion was drawn that money demand is unpredictable and unstable.

The interaction of the demand for money, as explained by the liquidity preference theory and money supply determines interest rates in the economy. These are the conditions brought forth by the theory

3.2 The theory of portfolio choice indicates that other factors besides income and nominal interest rates can determine the demand for money. List the three other factors and explain how their changes can affect the demand for money. [10]

Variable	***Change in Variable***	***Money demand response***	***Reason***
Payment technology ✓	↑	↓	*Less need for money in transactions ✓*

Wealth ✓	↑	↑	*More resources to into money* ✓
Risk of other assets ✓	↑	↑	*Money relatively less risky and so more desirable* ✓
Inflation risk ✓	↑	↓	*Money relatively more risky and so less desirable* ✓
Liquidity of other assets ✓	↑	↓	*Money relatively less liquid and so less desirable* ✓

Students can explain through a table or in a paragraph way.

Question 4 (20 marks)

4.1 Explain the meaning of credit risk. List how banks can attempt to manage or solve their credit risk [7]

Credit risk is the risk of defaulting payments, this is mainly due to asymmetric information when conducting transactions ✓✓*. Banks can solve credit risk through any of the following ways:*

-screening and monitoring ✓

-long-term relationships ✓

-credit rationing ✓

-loan commitments ✓

-collateral and compensating balances ✓

4.2 Describe four main categories of people whose real income is adversely affected by inflation [13]

(v) ***Those who lack the bargaining power*** *to increase their nominal incomes in accordance with the inflation rate* ✓ *or– the unemployed, the un-unionised, pensioners, and small business owners. Inflation therefore tends to hit the weakest in society hardest.* ✓

(vi) ***The ones hold money*** ✓ ***-because inflation reduces the purchasing power of that money*** *- those with money in their purses or their bank accounts, which is all of us. But again, it is the poorest in society who are worst hit by this effect, because the greatest proportion of their wealth lies in the money they receive as weekly or monthly wages* ✓*. By contrast, a significant proportion of the wealth of richer people is in goods and assets (homes, land, shares, etc), the nominal value of which normally keeps pace with inflation. In that way, the wealth of richer people is better protected against inflation.* ✓

(vii) ***Creditors*** ✓ *– people who have lent money to others. Because inflation means that the purchasing power of money steadily declines over time, creditors are repaid in money units of lower purchasing power.* ✓ *This effect, however, happens only if interest rates are not adjusted upwards to compensate for this loss, as they often are. Only when inflation causes a decline in the real interest rate on debt* ✓ *(roughly determined as the nominal interest rate minus the inflation rate) do creditors lose as a result of inflation or, for that matter, do debtors gain from inflation* ✓*.*

(viii) *The fourth category of* ***people includes all of us*** ✓*, to the extent that inflation causes us to fall into a higher income tax bracket. South Africa, like most countries in the world, has a progressive income tax system* ✓*, meaning that on successive additions to income (called brackets) a higher percentage of income tax is levied. Because inflation raises the nominal value of our income, it can force us into higher tax brackets even while the real value of our income remains the same (this is known as the "bracket creep")* ✓✓*.*

Question 5 (20 marks)

5.1 Explain the six main functions of the South African Reserve Bank (SARB) [12]

(i) ***Issue cash or currency*** ✓✓ ***-*** *SARB has the sole right to issue banknotes and coins. The SARB controls the South African Mint Company which issues coins, and owns the South African Bank Note Company which prints banknotes. The printing of currency on an excessive scale inevitably leads to hyperinflation, the collapse of the financial system and ultimately the collapse of the economy.*

(ii) ***Interbank obligations*** ✓✓ *- The SARB provides facilities for clearing and the settlement of interbank obligations. An interbank obligation arises, for example, when deposit holder A, who banks at bank AA, writes a cheque to pay person B, who banks at bank BB. Cheques and electronic payments are cleared centrally by the SARB (through the Automated Clearing Bureau). The clearing of payments on a daily basis involves the calculation of net claims between the banks, as well as between the banks and the Reserve Bank. The SARB provides for final real-time electronic settlement of interbank obligations, emanating from all noncash payments made in the economy, via the South African Multiple Option Settlement (SAMOS) system. The SARB also oversees*

the safety and soundness of the payment system through the introduction of settlement risk reduction measures.

(iii) ***Lender of last resort*** ✓✓ *- The SARB acts as a banker and supervisor for other banks in the sense that it provides accommodation to banks on a daily basis when they experience liquidity shortages. The SARB also holds the statutory cash reserves which all registered banks are required to maintain, banks keep their cash reserves with the central bank in the form of deposits. The purpose of bank supervision is to maintain sound and effective banking practices in the interest of depositors and the economy as a whole.*

(iv) ***Implementation of monetary (and exchange rate) policy*** ✓✓

(v) Banker for government ✓✓ ***-*** *The main services provided are administering the auctions of government bonds and treasury bills, participating in the National Treasury's debt management meetings and managing the flow of government funds in the money market.*

(vi) ***Custodian of the greater part of South Africa's gold and other foreign exchange reserves*** ✓✓ ***-*** *Although banks also hold foreign reserves, they might not necessarily hold sufficient reserves, given the fact that banks are guided by the profit motive. The SARB manages these reserves prudently, against the background of international uncertainty, the possibility of external shocks and exchange rate volatility. The availability of reserves also adds credibility to the exchange rate policy*

5.2 Is the South African Reserve Bank (SARB) independent? Explain your answer based on the two types of independence: goal independence and operational (instrument) independence [8]

South Africa currently uses an inflation targeting policy framework in which monetary policy seeks to keep the inflation rate within a predefined target range (3-6%) ✓*. This inflation target is set in consultation between the Governor of the SARB and the Minister of Finance* ✓*. This means that the SARB does not have goal independence* ✓*. This is not necessarily bad. Inflation can only be beaten when it has the support of all of government, firms and labour* ✓*.*

The SARB does, however, have operational (instrument) independence ✓, that is, the choice of instruments and the autonomy to adjust such instruments in monetary policy decisions aimed at achieving the target ✓. The SARB's decision-making process, as far as the execution of monetary policy is concerned, is independent of political interference. ✓ The SARB is accountable to Parliament via the Minister of Finance ✓.