6. MONEY MARKETS

ASSIGNMENT SOLUTIONS

PROBLEM NO: 1

Reserve Money = Currency in Circulation + Banker's Deposits with RBI + Other Deposits with RBI

= 15,428.40 + 4,596.18 + 183.30 = 20,207.88

PROBLEM NO: 2

M_3 = Currency with the Public + Demand Deposits with Banks+ Time Deposits with Banks + 'Other' Deposits with Reserve Bank

= 12,637.1 + 14,106.3 + 1,01,489.5 + 210.9 = 1,28,443.8

PROBLEM NO: 3

Required Formulae:

M_4 = M_3 + total deposits with the Post Office Savings Organization (excluding National Savings Certificates).

M_3 = M_1 + net time deposits with the banking system.

M_1 = Currency notes and coins with the people + demand deposits of banks (Current and Saving deposit accounts) + other deposits of the RBI.

Procedure to solve:

M_1 = Currency with the public + Demand Deposits with Banks + Other Deposits of RBI

= 1,12,206.6 + 1,93,300.4 + 2,67,310.2 = 5,72,817.2

M_3 = M_1 + Net Time Deposits with Banks   = 5,72,817.2 + 2,67,310.2 = 8,40,127.4

M_4 = M_3 + Post Office Savings Deposits   = 8,40,127.4 + 277.5   = 8,40,404.9

ANSWERS FOR TEST YOUR KNOWLEDGE QUESTIONS

QUESTION NO. 1

Money: Money refers to assets which are commonly used and accepted as a means of payment or as a medium of exchange or of transferring purchasing power.

From the economists point of view money is the only asset which has perfect liquidity and hence used as a medium of exchange for transactionary purpose. According to them also there are many other assets such as government bonds, deposits and other securities, land, houses etc. which has permanent store value and served as near money.

QUESTION NO. 2

A Central bank of a country determines the nation's money supply. If all money is in the form of currency and no deposits with the banks then a central bank can raise the interest rate on public borrowings through commercial banks to reduce the money supply and vice versa.

QUESTION NO. 3

The relationship between the **price level** and the **nominal money supply** is DIRECT i.e. as the nominal money supply increases the currency holdings with the public increases and demand for goods and

services also increases which leads to rise in price level and vice versa.

The relationship between inflation and the growth rate of the nominal money supply

QUESTION NO. 4

Theories of Demand of Money: The following are Theories on the Demand of money.

a) Quantity theory of Money (QTM) - Classical Approach (or) Fisher's Approach

b) Cash Balance Approach (or) Neo - Classical Approach (or) Cambridge Approach

c) Liquidity Preference Theory - Keynesian Theory

d) Post Keynesian Theories - (i) Inventory Approach - Baumol and Tobin, (ii) Restatement of Quantity Theory of money - Friedman and (iii) Demand for Money as Behaviour towards Risk - Tobin.

QUESTION NO. 5

Definition of Bond's Price: A bond's price is the present value of the following future cash amounts:

- The cash interest payments that occur every six months, plus
- The lump sum cash amount that occurs when the bond matures

Typically, a bond's future cash payments will not change, but the market interest rates will change frequently.

The change in the market interest rates will cause the bond's present value or price to change. For instance, if a bond promises to pay 6% interest annually and the market rate is 6%, the bond's price should be the same as the bond's maturity value. However, if the market rate increases to 7%, and an existing bond is promising to pay only 6%, the 6% bond will not be worth its face value or maturity value. For it to be sold, the price will have to be less than the maturity amount. However, if the market rates drop to 5%, an existing bond that is promising to pay 6% will be very attractive. As a result, this bond will sell for more than its maturity value.

QUESTION NO. 6

Narrow Money (M_1): It is a measure of money supply

M_1 = Currency and coins with the people + demand deposits of banks (Current and Saving accounts) + other deposits of the RBI.

Broad Money (M_3): It is a measure of money supply

M_3 = M_1 + Net time deposits with the banking system.

By comparing M_1 and M_3: M_3 - M_1 = Net time deposits with the banking system.

QUESTION NO. 7

Post Keynesian Theories:

i) Inventory Approach - Baumol and Tobin,

ii) Restatement of Quantity Theory of money - Friedman,

iii) Demand for Money as Behaviour towards Risk - Tobin.

QUESTION NO. 8

People hold money balances due to the following reasons:

- Money is an essential element in conducting most of the economic transactions in an economy

- Money is a totally <u>liquid asset</u> as it can be used directly, instantly, conveniently and without any costs or restrictions to make payments.
- Money has generalized purchasing power and is generally acceptable in settlement of all transactions and in discharge of other kinds of business obligations including future payments.
- The need for holding money also arises as there is lack of synchronization between receipts and expenditures.

QUESTION NO. 9

The given topic is a concept of speculative demand for money.

No, I do not always hold only interest bearing assets in my asset portfolio- only partly held in assets- It depends on costs in terms of time, the levels of interest payments, expectations about bond prices and future price levels.

QUESTION NO. 10

Whether to make all my transactions through online transfers or not, it depends on financial infrastructure, how costless and immediate are transfers, preferences, attitude towards risks and the opportunity costs.

QUESTION NO. 11

The effectiveness of an asset as a store of value depends on the degree and certainty with which the asset maintains its value over time. Money is undeniably a good store of value; but it is not unique as a store of value. Financial assets other than money are also performing the function of store of value just as money has the financial assets have fixed nominal value over time and represent generalised purchasing power. Any asset, such as equities, bonds, land, buildings, precious metals, antiques and works of art can all act as store of value.

QUESTION NO. 12

Theory of Money	Motive of holding Money	Determinant of Demand
Quantity Theory of Money	Transactions Motive only	Supply of Money
Neo Classical Approach	Transactions & Precautionary Motive	Real Income
Keynesian Theory of Demand	Transactions, Precautionary and Speculative Motives	Income & Interest Rate
Inventory Approach(Baumol and Tobin)	Transactions Motive	Income; Brokerage fee in the transaction of money to bonds.
Restatement of Quantity Theory of money (Friedman)	Speculative Motive	Permanent income and Relative returns on assets
Demand for Money as Behaviour towards Risk (Tobin)	Speculative Motive	Interest rate and risk aversion

QUESTION NO. 13

In the economy, the following statistics describe the money supply:

Currency = $ 1,000 billion,

Banker's deposits (Reserves) = $ 125 billion

Deposits = $ 4,000 billion

Other deposits assumed to have no effect.

Calculate High powered money, required reserves, excess reserves and currency ratio, influence the money supply in an economy when Banker's deposits (Reserves) changes from $ 125 billion to $ 150 billion.

Solution:

When Banker's deposits (Reserves) are $ 125 billion:

i) Excess Reserves = Deposits – Bankers deposits with RBI (Reserves) = $ 4000 billion – $ 125 billion = $ 3,875 billion

ii) High powered money (M_0) = Currency + Reserves = $ 1,000 billion + $ 125 billion = $ 1,125 billion

iii) Money Supply = Currency + Deposits = $ 1,000 billion + $ 4,000 billion = $ 5,000 billion

iv) Ratio of Currency to Deposits = $\dfrac{\text{Currency}}{\text{Deposits}}$ = $\dfrac{\$\,1{,}000\ \text{billion}}{\$\,4{,}000\ \text{billion}}$ = 0.25

v) Money Multiplier = $\dfrac{\text{Money Supply}}{\text{Monetary Base}}$ = $\dfrac{\text{Currency} + \text{Deposits}}{\text{Currency} + \text{Reserves}}$ = $\dfrac{\$\,5{,}000\ \text{billion}}{\$\,1{,}125\ \text{billion}}$ = 4.4444

When Banker's deposits (Reserves) are $ 150 billion:

i) Excess Reserves = Deposits - Bankers deposits with RBI (Reserves) = $ 4000 billion - $ 150 billion = $ 3,850 billion

ii) High powered money (M_0) = Currency + Reserves = $ 1,000 billion + $ 150 billion = $ 1,150 billion

iii) Money Supply = Currency + Deposits = $ 1,000 billion + $ 4,000 billion = $ 5,000 billion

iv) Ratio of Currency to Deposits = $\dfrac{\text{Currency}}{\text{Deposits}}$ = $\dfrac{\$\,1{,}000\ \text{billion}}{\$\,4{,}000\ \text{billion}}$ = 0.25

v) Money Multiplier = $\dfrac{\text{Money Supply}}{\text{Monetary Base}}$ = $\dfrac{\text{Currency} + \text{Deposits}}{\text{Currency} + \text{Reserves}}$ = $\dfrac{\$\,5{,}000\ \text{billion}}{\$\,1{,}150\ \text{billion}}$ = 4.35

Conclusion: With the rise in High powered money by $25 billion, Excess Reserves and money multiplier gets declined whereas, Currency Ratio and Money Supply remains constant.

QUESTION NO. 14

The additional units of high-powered money that goes into 'excess reserves' of the commercial banks do not lead to any additional loans, and therefore, these excess reserves do not lead to creation of deposits. In other words, excess reserves may be considered as an idle component of reserves and therefore has no effect on money multiplier.

QUESTION NO. 15

When the Reserve Bank lends to the governments under WMA /OD it results in the generation of excess reserves (i.e., excess balances of commercial banks with the Reserve Bank). The excess reserves thus created can potentially lead to an increase in money supply through the money multiplier process.

QUESTION NO. 16

Money multiplier $= \dfrac{1}{\text{Required Reserve Ratio}} = \dfrac{1}{100\%} = 1$

If banks keep the whole deposits (100%) then there will be no additional money supply as there is no credit supply.

QUESTION NO. 17

The different determinants of money supply in a country are changes in the economic activities which affect people's desire to hold currency relative to deposits, rate of interest, Change in High powered money and Money multiplier.

QUESTION NO. 18

Prepare separate graphs using excel on 'Money Stock: Components and Sources' and 'Reserve Money: Components and Sources' for four previous months from the weekly statistical supplements published by Reserve Bank of India. Identify the trends in each.

QUESTION NO. 19

a) Excess reserves are those reserves that the commercial banks hold with the central bank in addition to the mandatory reserve requirements. Excess reserves result in an increase in reserve-deposit ratio of banks; less money for lending reduces money multiplier; money supply declines.

b) When people hold more money, it increases the currency-deposit ratio; reduces money multiplier; money supply declines.

c) ATMs let people to withdraw cash from the bank as and when needed, reduces cost of conversion of deposits to cash and makes deposits relatively more convenient. People hold less cash and more deposits, thus reducing the currency-deposit ratio; increasing the money multiplier causing the money supply to increase

d) See c) above

e) If people, for any reason, are expected to withdraw money from ATMs with more frequency, then banks will want to keep more reserves. This will raise the reserve ratio, and lower the money multiplier. As a result money supply will decline.

f) If banks decides to keep 100% reserves then the Money multiplier = 1/required reserve ratio = 1/100% = 1. No additional money supply as there is no credit creation

g) If the required reserve ratio is 0 %, then money multiplier is infinite and there will be unlimited money creation. There will be chaos with spiraling prices as money supply is too much and real output cannot increase.

QUESTION NO. 20

Excess reserves are those reserves that the commercial banks hold with the central bank in addition to the mandatory reserve requirements. Excess reserves result in an increase in reserve - deposit ratio of banks; less money for lending reduces money multiplier; money supply declines.

QUESTION NO. 21

Yes it is Gold Standard theory of money supply

QUESTION NO. 22

Reserve bank of India

QUESTION NO. 23

The money constituents as per 1977 Second working group of RBI are M_1; M_2; M_3; and M_4.

The money constituents as per 1998 Third working group of RBI are M_0; NM_1; NM_2; NM_3; L_1; L_2 and L_3.

As per Working group components of money supply:

- M_0 (Reserve money) is being used to bring price stability and to control liquidity.

- Narrow money circulates more currency or idle cash balances with the public and hinders investment

- Broad money constitutes time deposits which encourages long term investment and economic growth.

- Liquidity aggregates encourages the flow of money from non-banking financial sector rather than banking system.

QUESTION NO. 24

Market Interest Rate.

QUESTION NO. 25

The behaviour of the public influences bank credit through the decision on ratio of currency to the money supply designated as the 'currency ratio'.

Currency ratio (or) Currency deposit ratio *(c)* = $\dfrac{\text{Currency in the hands of the public}}{\text{Deposits}}$

If currency in the hands of public increases, then currency ratio increases.

Currency in hands does not undergo multiple expansions while bank deposits get reduced and create only less credit money. The overall level of multiple expansion declines, and therefore, money multiplier also falls. Therefore, we conclude that money multiplier and the money supply are negatively related to the currency ratio *c*.