Financial Institutions and Markets

New Syllabus

Course Title: Financial Institutions and Markets
Course No. FIN 634
Nature of the Course: Specialization
Duration of the Course: 100 lecture hours
Duration of the Class: 60 minutes

Full Marks: 100
Pass Marks: 40

Course Objectives

The course aims to provide to the students about understanding on the workings of the financial system, money and capital market, commercial banks, non-bank thrift and other institutions, central banking and regulations in order to facilitate the savings and investment, maximizing yields, making payments, supplying credit, accumulating and allocating wealth, generating liquidity, protecting against portfolio risk, consumers and business in financial market, future of financial system and supporting public policy particularly in the context of Nepal.

Course Description

This course provides an overview of the financial market and institutions with a special emphasis on financial system, commercial banking industry, non-bank and thrift institutions, regulation of financial institutions, interest rate in financial system, money market instruments, central banking in financial market, financial derivatives and future of financial system in the context of Nepal.

Course Contents

Unit 1: Introduction ....LH 12

Overview of the Financial system, influence of financial market in the economy, Overview of the financial market, Structure of financial market, functions performed by financial system and financial market, Types of financial market, financial assets, securities traded in financial market, creation of financial assets, characteristics of financial assets, financial assets and financial system, lending and borrowing in the financial system, evolution of financial transactions, relative size and importance of major financial institutions in financial market, portfolio decisions by financial intermediaries and other financial institutions, disintermediation of funds, internationalization of financial market.

Unit 2: Central Banking, Monetary Policy, Role of Government in Financial Market LH 12

History and Organization of central bank, function, role and objectives, assets and liabilities of central bank, open market operation, discount lending, Monetary policy tools used, goals and target of monetary policy, global monetary policy, international monetary policy co-ordination, National and Local Government in financial market-growth and borrowing, sources of revenue for central, state and local government, types of securities issued by national and local government, features and marketing of municipal debt, problems in municipal market, Micro-finance, Central bank and monetary policy tools in Nepal.

Unit 3: Commercial Banking Industry ....LH 12

Structure and commercial bank management, general principles of bank management, Bank sources and uses of fund, managing liquidity and risks in commercial banks, branch banking, portfolio characteristics of commercial banks, money creation and destruction by banks, electronic banking, capital adequacy and Basel Accord I and II, financial innovation bank consolidation and information technology, measuring bank and commercial bank performance and commercial bank practices in Nepal.

Unit 4: Non-Bank Thrift and Other Institutions ....LH 10

Thrift operations-Credit unions: Background, sources and uses of fund, regulation of savings and loan association, savings banks: Background, sources and uses of fund, regulation, insurance companies: Sources and uses of fund, risk exposure, life insurance companies and property casualty insurance companies, adverse selection moral hazard in insurance, health insurance, pension funds: types and operations, Finance companies: types, operations, sources and uses, risk in finance companies, Mutual Fund Industry and Investment companies: growth, structure, investment objective classes and fees structure.

Unit 5: Regulation of Banks and Financial Institutions ....LH 10

Reasons behind the regulation of banks and financial institutions, Regulation of commercial banks, Non-bank thrift institutions, insurance companies, pension funds, finance companies, and investment companies, overview of trends in regulation of banks and financial institutions, Regulation in commercial banks and financial institutions in Nepal.

Unit 6: Money Market Instruments .... LH 10

Participants in money market and why money market needed, characteristics of money market, Role and need of money market, volume of money market securities, pattern of interest rates in money market, Money market instruments and estimating yield: Treasury bills, dealer loan and repurchase agreement, primary dealers, dealer loans, commercial paper, bankers' acceptance, Euro dollars.

Unit 7: Interest Rate in Financial System .... LH 12

Functions of the rate of interest in the economy, Economic forces that affect interest rate, structure of interest rate, classical theory of interest rate, liquidity preference theory, loanable funds theory, rational expectations theory, relationship between interest rate and security prices, measures of the rate of return or yield on a loan or a security, Yields across securities, yield price relationship, interest rates charged by institutional lenders, inflation and interest rates, yield curves and duration, maturity of a loan, different approach to maturity, default risk, taxes, and other factors influencing interest rate.

Unit 8: Consumers and Business in Financial Markets .... LH 12

Consumers as lenders and borrowers of funds, use of debit and credit cards, consumer lending institution, Residential mortgage market, structure and trends of mortgage market, innovations in mortgage instruments, mortgage backed securities: characteristics, operations, primary mortgage market, private mortgage insurance, conventional mortgage, discount points, mortgage amortization, collateralized mortgage obligation, pass-through mortgage securities, participants in mortgage market, international mortgage securitization, corporate bonds and characteristics, corporate bond market, corporate stock and characteristics, third market in listed securities and market for stock options.

Unit 9: Future of the Financial System .... LH 8

Social, economic, and demographic forces reshaping financial system, trends in financial system, challenges and opportunities recent trends.

Basic references

Madura, J. (2001), **Financial Markets and Institutions,** New Jersey: Thomson South-Western.

Mishkin, F. S. (2003), **Financial Markets, Institutions, and Money,** New York: Harper Collins College Publishers.

Rose, P.S. and Marquis, M.H. (2006), **Money and Capital Markets, Financial Institutions and Instruments in a Global Marketplace,** New York: McGraw-Hill, Irwin.

Supplementary Readings

Fabozzi, F.J., Modigliani, F., Jones. F.J. and Ferel. M.J. (2006). **Foundation of Financial Markets and Institutions.** New Delhi: Pearson Education.

Hadjimichalakis, M.G. and Karma, G.H. (2006). **Contemporary Money, Banking and Financial Markets** Chicago: Richard D. Irwin Inc.

Johnson, H.J. (2004). **Financial Institutions and Markets: A Global Perspective.** New Delhi: Tata McGraw Hill.

Kidwell, D.S. and Blackwell, D.W. (2000). **Financial Institutions, Market and Money.** New York: The Dryden Press, Harcourt College Publishers.

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Mayo, H.H. (2004). **Financial Institutions, Investment and Management.** New Jersey: Thomson South-Western.

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Saunders, A. and Kornett, M.M. (2007). **Financial Markets and Institutions.** New Delhi: Tata McGraw H Publishing Company.

Shrestha, M.K. (1989). **Shareholder's Democracy and Annual General Meeting Feedback.** Kathmandu Ratna Pustak Bhandar.

Shrestha, M.K. (1995). **Finance Companies in Nepal.** Kathmandu: Ratna Pustak Bhandar.

Shrestha, M.K. and Bhandari, D.B. (2008). **Financial Markets and Institutions.** Kathmandu: Asmi Publication.

Shrestha, M.K. and Gurung, R. (2008). **Financial Institutions and Markets.** Kathmandu: Benchma Education Support (P) Ltd.

Shrestha. S. (1992). **Portfolio Behaviour of Commercial Banks in Nepal.** Kathmandu: Mandala Book Point

Thapa, K. (2009). **Financial Institutions and Markets.** Kathmandu: Asmita Books Publisher and Distributo (P) Ltd.

Thygerson, K.J. (1992). **Financial Markets and Institutions.** New York: Harper Collins College Publishers.

New Model Questions- 2067

M.B.S. /II Year/ Management   **Full marks: 100**
Financial Institutions and Markets (FIN 634)   **Time: 4 hours**

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Group "A"(Short Answer Questions)

Attempt any SIX questions.   **[60]**

1. What is financial system? Explain the functions performed by the financial system.   [2+8]
2. Why and how are banks able to create money? Does the ability of banks to create money have important implications of public policy?   (6 + 4)
3. Suppose that each life insurance policy has a value of Rs 100,000 that the one-year survival probability for each policyholder is 0.99, and there are 1,000 policies. Each policy pays a premium of Rs 1,600.
    a.   The company's expected net revenue.
    b.   Standard deviation for a single jumbo policy of Rs 100 million.
    c.   Standard deviation of the revenues from the portfolio.   (3 × 3.33)
    Ans: (a) Rs. 600,000 (b) Rs. 9,949,874.37 (c) Rs. 314,642.65
4. A bid of 97.270 is accepted on 91days treasury bills.
    a.   What discount interest rate would be published?
    b.   Restate the annual interest rate in a way that would make it comparable to rates quoted on bonds.
    c.   Assume that the discount interest rate has risen to 12 percent thirty days after issue. What price will the Treasury bills be selling at?
    d.   What annual rate would the holder have earned if he had bought the Treasury bill when it was first issued and then resold it after thirty days?   (4 × 2.5)
    Ans: (a) 10.8% (b) 11.26% (c) Rs 97.97 (d) 9.1156%
5. NMB Bank reports tier one capital of Rs 60 million and tier two capital of Rs 70 million. NMB has assets of Rs 10 million with a risk weight of zero, assets of Rs 350 million with a 0.20 risk weight, assets of Rs 680 million with a 0.50 risk weight, and assets of Rs 1,010 million with a risk weight of 1.00.
    a.   What is NMB's total risk weighted assets?
    b.   What capital adequacy ratio?
    c.   Does the bank have enough tier one capital? Enough total capital? Why or why not? (3.33×3)
    Ans: (a) Rs 1,420 (b) 9.15%
6. An AAA-rated corporate bond has a current market price of Rs 800 and will pay Rs 100 in interest for 10 years.
    a.   If its par value is Rs 1,000, what is its yield to maturity?
    b.   Suppose the investor plans to sell it in five years for Rs 900. What would his or her holding period yield be?   (5 × 2)
    Ans: (a) 13.81% (b) 14.38%

Answer the following questions: (2 × 5)
a.   Determine how the annualized yield of a T-bill would be affected if the purchase price is lower. Explain the logic of this relationship.
b.   Determine how the one year forward rate would be affected if the quoted two year interest rate rises, holding quoted one year interest rate constant. Also hold the liquidity premium constant. Explain the logic of this relationship.
c.   Determine how the bond elasticity would be affected if the bond price changed by a large amount, holding the change in the required rate of return constant.
d.   Guras Insurance company wants to properly price its auto insurance, which protects against losses due to auto accidents. If Guras wants to avoid the adverse selection and moral hazard problems, should it assess the behavior of insured people, uninsured people, or both groups? Explain.
e.   Determine how the duration of a bond would be affected if the coupons are extended over additional time periods.

8. Write short notes on (any two): (2×5)
   a. Liquidity preference theory of interest rates
   b. Random walk hypothesis
   c. Mortgage bond

Group "B"(Comprehensive Answer Questions)

Attempt any TWO questions.   **[40]**

9. Explain the role of central bank in promoting financial market and how the sources of revenue are generated in enhancing economic growth of economy in the present context of Nepal.   20

10. Consider the following balance sheet of a bank. (Rs in million)

Assets		Duration	Liabilities and equity		Duration
Treasury securities	Rs 90	7.49	Negotiable CDs	Rs 100	1.943
Municipal bonds	20	1.50	Other time deposits	125	2.750
Commercial loans	100	0.60	Subordinated notes	50	3.918
Consumer loans	50	1.20	Shareholder equity	25	
Real estate loans	40	2.25			
Total	Rs 300		Total	Rs 300	

   a. What is the duration of bank assets & bank liabilities?
   b. What is the duration gap?
   c. Suppose interest rates on both assets and liabilities rise from 8 percent to 10 percent, what is the change in value of bank's net worth?
   d. Suppose interest rate fall by two percentage points from 8 percent to 6 percent, what would happen to the value of the bank's net worth? At what duration gap, interest rate risk will be zero?
   e. Interpret the all results calculated a to d. (4×5)

   Ans: (a) 3.047 years and 2.669 years(b) 0.60 years (c) – Rs 3.34 million (d) Rs 3.34 million and 3.324 years

11. (a) You just received a Rs 1,000 add-on loan. The monthly interest rate is 1 percent, and you will repay it over 30 months.
   i. How much is the monthly payment?
   ii. Find the effective rate on the add on loan.
   iii. What would the monthly payment be if the loan is changed to a discount loan?
   iv. What is the effective rate on discount loan?
   v. Which loan is beneficial to the lender? Why? (2×5)

   (b) What is the price of a three-year, 8% annual coupon bond yielding 11% and having a face value of Rs 1000? Assuming annual compounding.
   i. What is the duration of the bond?
   ii. Assume that interest rates suddenly rise to 13%. Compute the new price of the bond by discounting the cash flows at the new rate and by using the duration price change formula. Are the two answers the same? Why or Why not?
   iii. Describe the applications of duration. $(3 + 3 + 4)$

   Ans: (a) (i) Rs 43.3333 (ii) 23.87% (iii) Rs 33.33 (iv) 34.49% (b) (i) 2.7738 years (ii) Rs 881.996

1. INTRODUCTION

1. 2070 Q.No. 2

Define financial system and explain flow of funds in a world without financial institutions.   [4+6]

2. 2070 Old Q.No. 4

Examine each of the following financial transactions and indicate which type it is (direct finance, semi-direct finance, indirect or disintermediation). Also support your answer. Some of the transactions described below involve more than one type of financial transaction. Be sure to identify all types of transactions involved.

(a) Borrowing money from a bank.

(b) Purchasing a life insurance policy.

(c) Selling shares of stock through a broker.

(d) Withdrawing money from a savings deposit account and lending it to friend.

(e) Selling shares of stock to a colleague at work.

(f) Your corporation's contracting an investment banker to help sell its bonds.   [10]

3. 2069 Old Q.No. 3

Examine each of the following financial transactions and indicate which type it is (direct finance, semi-direct finance, indirect or disintermediation). Also support your answer. Some of the transactions described below involve more than one type of financial transaction. Be sure to identify all types of transactions involved.

a. Borrowing money from a bank.

b. Purchasing a life insurance policy.

c. Selling shares of stock through a broker.

d. Withdrawing money from a savings deposit account and lending it to friend.

e. Selling shares of stock to a colleague at work.

f. Your corporation's contracting an investment banker to help sell its bonds.   [10]

Ans: (a) indirect finance (b) indirect finance (c) semi-direct finance (d) direct finance (e) direct finance (f) semi-direct financing

4. 2068 Q.No. 1

Discuss the factors that have led to the internalization of financial markets.   [10]

5. 2068 Old Q.No. 1

What are the essential differences between primary and secondary securities? Why are these instruments important to the operation of the financial system?

6. 2067 Q.No. 1

Financial sector is the backbone of an economy. In the light of this statement, discuss what role Nepalese financial sector plays in the economic development of the country.   Introduction [10]

7. 2067 Q.No. 1 (Old)

What are the essential differences between primary and secondary securities? Why are these instruments important to the operation of the financial system?   [10]

8. 2067 Q.No. 7 (Old)

a. Why is each function of the financial system important to households, business and government?   [10]

b. Highlight on the growth of financial market in Nepal.   [10]

9. 2066 (I) Q.No. 1

Explain how financial assets are created. In this connection, analyze and interpret the relationship between lending and borrowing in financial system with suitable examples wherever possible.   [4+6]

10. 2065 Q.No. 1

How financial assets are created? Explain in this connection the various underlying characteristics of financial assets.

11. 2064 Q.No. 1

Do you think that financial market is efficient in Nepal? If not, what are the reasons responsible for having inefficient function of the financial market?   [10]

12. 2060 Q.No. 8 (a)

In a recent year, the following amounts of money market and capital market instruments- loans and securities - were issued and outstanding in Nepal: Rs. in Billion

		Rs. in Billion
1.	Business inventory loans..	185
2.	Treasury bills...	540
3.	Treasury notes and bonds...	1650
4.	Eurodollar deposits..	390
5.	Commercial mortgages for the construction of factories and equipment..	740

6.	School and highway construction bonds...	75
7.	Foreign bonds	295
8.	Local government (municipal) notes and bonds	601
9.	Bank certificates of deposits..	442
10.	Corporate stock (equities)	4158
11.	Commercial paper...	545
12.	Repurchase agreements	187
13.	Government securities	398
14.	Farm mortgages	80
15.	Corporate notes and bonds	1491
16.	Bankers' acceptances	41
17.	4-year and 5-year automobile loans to consumers	285
18.	Euro bonds	137
19.	Loans to security dealers	87
20.	Residential mortgages to support the construction of homes.	3137

Classify each of the above instruments as to whether they usually qualify as (a) a money market instrument or (b) a capital market instrument. Also support the answer. If the above instruments represent all money and capital market instruments outstanding, what was the total rupee size of the money market? The total size of the capital market? [10]

13. 2060 Q.No. 8 (b)

In a recent year, the sectors of the Nepalese economy listed below reported the following net changes in their financial assets and liabilities (measured in billions of rupees):

	Net acquisitions of financial assets	Net increase in liabilities
Households	Rs. 9	Rs. 6
Farm businesses	3	3
Non farm non corporate business	8	10
Non financial corporation	9	12
Local governments	7	5
Government of Nepal	15	80
Foreign individuals and institutions	3	1
Nepal Rastra Bank	3	3
Commercial banking	6	4
Private non bank financial institutions	5	7

Using these figures, indicate which sectors were deficit-budget sectors and which were surplus-budget for the year under study. Were there any balanced-budget sectors? For all these sectors combined, were more funds loaned or more funds borrowed? Why do you think there is a discrepancy between total funds loaned and total funds borrowed? [10]

■ **Write short notes on:**

14. 2069 Q.No. 8a

Internationalization of financial markets [5]

15. 2068 Q.No. 8a

Structure of financial market [5]

NUMERICAL PROBLEMS

16. 2069 Old Q.No. 2

Consider the information presented below on the Nepalese economy:

Information	In billion Rs.
HMG government budget outlays	21.225
Local government budget outlays	33.865
Total personal income	233.885
Persona tax and non-tax payments	35.45
Local government's budget surplus	1.96
Purchases of durable goods	24.095
Expenditures on non-residential plant & equipment	26.62
Residential construction	10.91
Capital consumption on business plant & equipment	25
Undistributed business profits	2.105
Personal consumption expenditures	184.88
Change in business inventories	0.48
HMG budget surplus (or deficit)	−7.15

Calculate the following:

a. Current savings for households   b. Current business savings
c. Current government savings   d. Current household investments
e. Current business investment   [10]

**Ans: (a) Rs 13.555 billion (b) Rs 2.105 billion (c) – Rs 5.19 billion
(d) Rs 35.005 billion (e) Rs 52.1 billion**

2. CENTRAL BANKING, MONETARY POLICY, ROLE OF GOVERNMENT IN FINANCIAL MARKET

THEORETICAL QUESTIONS

1. 2070 Q.No. 4

What could be the reasons for the absence of municipal bonds in Nepal? Assess the prospects of these bonds in Nepal.   [5+5]

2. 2070 Q.No. 9

Define monetary policy and explain the monetary policy tools with reference to policies adopted by Nepal Rastra Bank.   [5+15]

3. 2070 Old Q.No. 3

Discuss the features of municipal bond. Why has it not been issued by Nepalese municipalities?   [10]

4. 2069 Q.No. 1

Critically examine the role of capital markets in the development of Nepalese economy.   [10]

5. 2069 Q.No. 9

Nepal Rastra Bank, as a central bank of the country, is a regulatory body of financial market institutions. In this context, what are the major features of regulatory measures that Nepal Rastra Bank uses to regulate the financial markets and institutions?   [20]

6. 2068 Q.No. 5

Critically examine the role of Nepal Rastra Bank as a regulatory body of financial companies. [10]

7. 2068 Old Q.No. 2

What role do you think that the government has to play in the development of finance companies especially in a new emerging economy like Nepal?   [10]

8. **2068 Old Q.No. 7b**

Who are the principal regulatory agencies responsible for the regulation and supervision of commercial banks? Explain their role. [10]

9. **2067 Q.No. 9**

What are the major objectives of monetary policy of a central bank? Discuss the key measures that Nepal Rastra Bank uses to maintain 'financial sector stability' in its current monetary policy. [20]

10. **2066 (I) Q.No. 2 a**

Discuss the features of municipal bond. [4]

11. **2066 (II) Q.No. 7**

"Nepal Rastra Bank acts as a promoter of Nepal's financial system." In what ways, do you think Nepal Rastra Bank promotes the financial system? Discuss. [20]

12. **2065 Q.No. 7**

Explain the role of central bank in promoting financial market and how the sources of revenue are generated in enhancing economic growth of economy in the present context of Nepal.

13. **2064 Q.No. 2**

What role do you think that the government has to play in the development of finance companies especially in a new emerging economy like Nepal? [10]

14. **2064 Q.No. 7**

What are the principal regulatory agencies responsible for the regulation and supervision of commercial banks? What aspects of banking does each agency regulate and supervise? [20]

15. **2063 Q.No. 7**

Explaining the various changes that have taken place in the regulation of banks and other financial institutions in the country. Comment in this connection the impacts of New Ordinance Act, 2003-2004. [20]

16. **2062 Q.No. 7**

Who are the principal regulatory agencies responsible for the regulation and supervision of commercial banks? What aspects of banking does each agency regulate and supervise? [20]

17. **2062 Q.No. 8 (a)**

What are net interest margin and the interest margin? Why are they important to banks? [4]

18. **2060 Q.No. 7**

What functions do central banks perform in a market-oriented economy? Explain why each is important to the efficient functioning of the financial and economic system. [20]

■ **Write short notes on:**

19. **2069 Q.No. 8b/ 2066 (I) Q.No. 6 c/2064 Q.No. 6 a**

Municipality bonds [5]

20. **2069 Old Q.No. 6a**

Municipal debt [5]

21. **2068 Q.No. 8b**

Micro finance institutions in Nepal [5]

22. **2065 Q.No. 6 a**

Motivation for national and local government borrowing [5]

23. **2061 Q.No. 6 (b)**

Local government borrowing

3. COMMERCIAL BANKING INDUSTRY

THEORETICAL QUESTIONS

1. **2065 Q.No. 2**

Discuss the 'money creation and distraction" of commercial banks with suitable example wherever possible.

2. **2064 Q.No. 8 a**

What is the net interest margin? The interest margin? Why are they important to banks?   [5]

3. **2062 Q.No. 2**

Explain the role of government in the development of banks and financial institutions in a new emerging nation like Nepal.   [10]

4. **2060 Q.No. 9 (a)**

Fill in correctly the missing items from the balance sheets and the statement of earnings and expenses of the bank whose financial accounts are listed below: *(Rs. in million)*

Balance Sheet		Statements of earnings and expenses	
Items	**Rs.**	**Items**	**Rs.**
Cash and inter-bank deposits	11	Revenue sources:	
Investment securities	?	Domestic loans interest and fees	?
Federal funds sold	8	Foreign loan interest and fees	6
Loans, gross	81	Income from security investments	4
Allowance for loan losses	–6	Miscellaneous revenues	1
Unearned discount on loans	–1	Total revenues	?
Net loans	?		
		Expenses:	
Premises and fixed assets	2	Interest on deposits	?
Miscellaneous assets	5	Interest on non-deposit borrowings	1
Total assets	110	Salaries and wages	2
Demand deposits	?	Occupancy costs	1
Savings deposits	20	Provision for loan losses	1
Time deposits	65	Miscellaneous expenses	2
Non-deposit borrowings	12	Total expenses	15
Total liabilities	?	Net operating income	3
		Income taxes	?
Stockholder's equity capital	4	Net income (or loss) after taxes	1

Also explain principle sources and uses of commercial bank funds.   [10]

■ **Write short notes on:**

5. **2069 Q.No. 8c**

Basel accord II

NUMERICAL PROBLEMS

6. **2070 Q.No. 5**

Suppose banks and other depository institutions receive additional excess reserve in the amount of Rs. 200,000 and the central bank has fixed 5 percent reserve requirement on transaction deposit. Further, suppose all depository institutions continually make loans with this excess reserve.   [2.5× 4]

a. Calculate the transaction deposit multiplier.

b. Calculate the maximum amount of new deposits (loans) that all depository institutions can create?

c. If depositors withdraw the excess deposit, what will happen to deposits?

d. If excess reserve declines from Rs. 200,000 to Rs. 150,000, what will happen to deposits?

    Ans: (a) 20 (b) Rs. 4,000,000 (d) Rs. 3,000,000

7. **2070 Q.No. 6**

XYZ Bank Ltd. has the following components in its capital account:

Common stock Rs. 220 millions	Undivided profit Rs. 320 million
Perpetual preferred stock Rs. 30 million	Surplus Rs. 70 million
12-year subordinated debt Rs. 50 million	Loan loss reserve Rs. 560 million
Equity reserve Rs. 100 million	Limited life preferred stock Rs. 10 million

This bank has Rs. 6,575 million total risk-weighted assets.

a. How much tier-one capital does this bank have?

b. How much tier-two capital does this bank have?

c. What is the tier-one capital ratio?
d. What is the tier-two capital ratio?
e. What is the total capital ratio?
[2 × 5]

Ans: (a) Rs. 740 million (b) 620 million (c) 11.25% (d) 9.43% (e) 20.68%

8. 2070 Q.No. 10

XYZ Bank Ltd. starts its first day of operation with Rs. 10 million in capital. Rs. 100 million in checkable deposits are received. The bank invests Rs. 10 million in marketable securities and another Rs. 80 million in loan and advances.

a. If required reserves are 10 percent, what does the bank balance sheet look like?
b. Suppose the reserve requirement is 10 percent and deposit withdrawal is Rs. 10 million. What will be the effect on the balance sheet of the bank?
c. Further suppose that bank invests Rs. 10 million in loan and advances, and does not hold excess reserve of Rs. 10 million. What does the bank balance sheet look like?
d. What is the required reserve after investment of Rs. 10 million in loan and advances?
e. Is the bank in reserve problem? If it is, how much fund does it need?
f. What are alternatives available to solve the reserve problem? [5× 3 + 2 × 2 +1]

Ans: (a) Assets: Marketable securities Rs.10; Loan and advance Rs. 80; Required reserve Rs. 10; Cash Rs. 10; Liabilities & Equity: Checkable deposits Rs. 100; Capital Rs. 10; Total Rs. 110 (b) Assets: Marketable securities Rs. 10; Loan and advance Rs. 80; Required reserve Rs. 9; Cash Rs. 1; Liabilities & Equity: Checkable deposits Rs. 90; Capital Rs. 10; Total B/S Rs.110 (c) Assets: Marketable securities Rs. 10; Loan and advance Rs. 90; Liabilities & Equity: Deposits Rs. 90; Capital Rs. 10; Total B/S Rs. 100 (d) Rs. 9 million

9. 2069 Old Q.No. 9

a. Suppose you have been given the financial information below for a commercial bank (in billion rupees):

Account	Rs.	Account	Rs.
Income taxes owed	Rs. 13	Interest paid to depositors	Rs. 64
Non-interest revenues from service fees	70	Interest on non-deposit borrowings	
Interest revenues from loans	129	Salaries and wages of employees	8
Interest and dividends from investments in securities	26	Overhead costs	
		Loan-loss provision	27
Dividends paid to stockholders	4		3
			2

i. Calculate this bank's net interest income, net non-interest income, net income before taxes, net income after taxes, undivided profits (or retained earnings), total revenues, and total expenses.
ii. Suppose the above bank's return on assets - the ratio of its net income after taxes to total assets - is 0.85 percent. What is the total of the bank's assets in rupees?
iii. Suppose this bank's return on stockholder's equity capital- the ratio of its net income after taxes to total equity capital- is 12 percent. What is the bank's total equity capital in rupees?
iv. Suppose the above bank's total deposits equal 75 percent of its total liabilities. How many deposits in total rupee volume does the bank hold? [20]

b. Indo-Nepal Commercial Bank has the following components in its capital account:

Account	Rs. in million
Common stock	10
Perpetual preferred stock	6
10-year subordinated debt	35
Loan loss reserves	20
Equity reserves	25
Undivided profits	15
Surplus	4
Limited-life preferred stock	15

The bank has assets of Rs. 400 million with a risk weight of zero, assets of Rs. 600 million with a 0.2 risk weight, assets of Rs. 800 million with a 0.5 risk weight, and assets of Rs. 1000 million with a risk weight of 1.0. Calculate and explain the following:

i. Tier-one capital

ii.   Tier-two capital

iii.   What is the bank's total risk-weighted asset?

iv.   Does the bank have enough tier-one capital?

v.   Does the bank have enough total capital?

Ans: (a) (i) Rs. 83; Rs. 40; Rs. 121; Rs104; Rs 225; Rs 104 (ii) Rs. 12,705.88 (iii) Rs. 900
(iv) Rs. 8,854.41 (b) (i) 60 (ii) 70 (iii) Rs 1,520 (iv) 3.95% (v) 8.55%

10. 2068 Q.No. 3

The following information is provided to you:

Assets		Liabilities and Equity	
Rate-sensitive	Rs. 200 (12%)	Rate -sensitive	Rs. 300 (6%)
Non-rate-sensitive	400(11%)	Non-rate-sensitive	300 (5%)
Non-earning assets	100	Equity	100
	Rs. 700		Rs. 700

a.   (i) Calculate gap, net interest income and net interest margin; (ii) How much net interest income change if interest rates fall by 200 basis points? Show your calculations.

[1.5+1.5+1.5+2.5]

b.   What changes in portfolio composition would you suggest to management if you expected interest rates to increase? Be specific in your answer.   [3]

Ans: (a) (i) – Rs 100; Rs 35; 5.833% (ii) Rs 37

11. 2068 Q.No. 10

You are provided the financial information of a commercial bank:

	(Rs. in millions)
Income taxes owed	13
Not-interest revenues from service fees	70
Interest revenues from loans	129
Interests and dividends from investment in securities	26
Dividends paid to stockholders	4
Interest paid to depositors	64
Interest on non-deposit borrowings	8
Salaries and wages of bank employees	27
Overhead costs	3
Loan loss provision	2

a.   Compute the bank's net interest income, net non-interest income, net income before taxes, undivided profits (or retained earnings), total revenues, and total expenses.

b.   Suppose the bank's return on assets, ratio of its net income after taxes to total assets, is 0.85 percent. What is the total of the bank's assets in rupees?

c.   If the bank's return on stockholders' equity capital, the ratio of its net income after taxes to total equity capital, is 12 percent, what is the bank's total equity in rupees?

d.   Assume again that the bank's total deposits equal 75 percent of the total liabilities. How many deposits in total rupee volume does the bank hold?   [6+5+4+5]

Ans: (a) Rs. 83; Rs. 40; Rs. 121; Rs104; Rs 225; Rs 104 (b) Rs. 12,705.88 (c) Rs. 900 (d) Rs. 8,854.41

12. 2068 Old Q.No. 8a

a.   Given the following information:

Assets	Rs.	Rate	Liabilities & equity	Rs.	Rate
Rate-sensitive	3,000	10.0%	Rate-sensitive	2,000	8.0%
Non-rate-sensitive	1,500	9.0	Non-rate-sensitive	2,000	7.0
Non-earning assets	500		Equity	1,000	
	5,000			5,000	

i.   Calculate the expected net interest income at current interest rates, assuming no change in the composition of the portfolio. What is the net interest margin?

ii.   Assuming that all interest rates by 1 percent, calculate the new expected net interest income and net interest margin.

b.   Suppose a bank with earning assets of Rs. 1,000 million. The bank projected for a net interest margin (NIM) of 8 percent over the next year. The bank believes that interest rates may fluctuate by 200 basis points. The bank's management is willing to accept a variation of 50

basis points in NIM as a result of the expected change in interest rates. Find out the maximum range of the funding GAP.

Ans: (a) (i) 3% (ii) Rs 140 and 3.11% (b) Rs.250 million

13. 2067 Q.No. 3

Mahalxmi Bank recently submitted its financial and operating results to the Central Bank of Nepal. The bank reported its net income before taxes (NIBT) and securities transactions of Rs. 27 million and taxes of Rs.6 million. If the bank's total operating revenues were Rs. 125 million, its total assets Rs. 2,100 million and its equity capital Rs. 125 million, what would be the bank's (1) tax management efficiency ratio, (2) expense control efficiency ratio, (3) assets management efficiency ratio, (4) funds management efficiency ratio, (5) return on investment (ROE). [5×2]

Ans: (1) 77.77% (2) 3.46% (3) 37.14% (4) 16.8 times (5) 16.8%

14. 2067 Q.No. 8 (Old)

a. Given the following information:

Assets	Rs.	Rate	Liabilities & equity	Rs.	Rate
Rate-sensitive	3,000	10.0%	Rate-sensitive	2,000	8.0%
Non-rate-sensitive	1,500	9.0	Non-rate-sensitive	2,000	7.0
Non-earning assets	500		Equity	1,000	
	5,000			5,000	

  i.   Calculate the expected net interest income at current interest rates, assuming no chance in the composition of the portfolio. What is the net interest margin?

  ii.   Assuming that all interest rates by 1 percent, calculate the new expected net interest income and net interest margin.

b. Suppose a bank with earning assets of Rs. 1,000 million. The bank's projections cell for a net interest margin (NIM) of 8 percent over the next year. Since, the bank believes that interest rates may fluctuate by 200 basis points. The bank's management is willing to accept a variation of 50 basis points in NIM as a result of the expected change is interest rates. Find out the maximum range of funding GAP.

Ans: (a) (i) 3% (ii) Rs 140 and 3.11% (b) Rs.250 million

15. 2067 Q.No. 9a (Old)

Calculation the duration gap of the following bank. [10]

XYZ Commercial Bank -31, December, 2004
Balance Sheet (Rs. in million)

Assets	Interest rate	Amount	Duration (years)	Liabilities and equity	Interest rate	Amount	Duration (years)
Cash	–	1,000	–	Deposits	4%	3,000	0.5
Government securities	4%	2,000	5.0	CDs	6%	9,000	4
Loans	8%	10,000	4.0	Equity	–	1,000	–

Ans: 0.923 years

16. 2066 (I) Q.No. 8 a

Suppose a bank held a daily average of Rs. 1,000 million in transactions (checkable deposit) and Rs. 20 million in non-transaction reservable liabilities over the period. Suppose reserve requirement is currently 3% on transaction deposit.

  i.   Find total reserve required.

  ii.   If the vault cash required is Rs. 100,000; find amount of required daily average reserve.

  iii.   Find maintenance reserve if it should be at least 5 percent of total required legal reserve. [10]

Ans: i. Rs 30,000,000; ii. Rs 29,900,000; iii. Rs 1,500,000

17. 2066 (II) Q.No. 2 a

Sagarmatha Bank has a liability portfolio with a market value of NRs. 1,000 million and an asset portfolio with a market value of NRs. 2,000 million. What is the duration of equity if duration of liability is 3 years and duration of an asset is 5 years? [5]

18. 2066 (II) Q.No. 2 b

Yeti Bank has earnings assets of NRs. 200 million. The bank estimated a net interest margin (NIM) of `6 percent over the next year. Sine the bank believes that the interest rate may fluctuate by 200 points, the bank's management is willing to accept variation of 50 basis points in net interest margin as a result of expected change in interest rate. What do you think is the maximum range of Funding GAP? [5]

Ans: Rs.50 million

19. 2065 Q.No. 5 a

Following information is given below: (Rs. in '000)

	2007 July	Interest rate	2006 July	Interest rate
Interest earning assets	18,500		15,600	
Investment in securities	6,500	6%	5,600	5%
Loans and advances	12,000	12%	10,000	10%
Interest paying liabilities	20,300		17,600	
Time deposit	17,300	4%	14,500	4%
Long-term borrowing	3,000	8%	3,100	6%

i.   Find net interest margin and interest rate spread.

ii   Why net interest margin is different from that interest rate spread? Explain their importance to banks.

Ans: (i) 4.85% & 3.29%; 5.3% & 3.86%

4. NON-BANK THRIFT AND OTHER INSTITUTIONS

THEORETICAL QUESTIONS

1. 2070 Old Q.No. 2

Distinguish between:

(a) Credit Unions and Insurance Companies

(b) Finance Companies and Investment Companies [10]

2. 2068 Old Q.No. 3

Describe the important role that investment bankers play in the functioning of the corporate bond market. [10]

3. 2067 Q.No. 3 (Old)

Describe the important role that investment bankers play in the functioning of the corporate bond market. [10]

4. 2065 Q.No. 3

Distinguish between: [10]

a.   Distinguish between Credit Unions and Insurance Companies

b.   Distinguish between Finance Companies and Investment Companies

5. 2063 Q.No. 2

Explain the problems and issues of non-banking financial institutions in Nepal. [10]

6. 2063 Q.No. 3

Explain the important role of credit unions and savings and loan associations that play in the functioning of the capital market. [10]

7. 2061 Q.No. 2

Explain the problems and issues of insurance companies in Nepal. [10]

8. 2061 Q.No. 3

Describe the important merchant-banking role that investment bankers play in the functioning of the capital market. [10]

■ **Write short notes on:**

9. 2070 Q.No. 8a

Nepal Insurance Board / [5]

10. 2068 Old Q.No. 6c / 2067 Q.No. 6c (Old)

Credit unions [5]

11. 2068 Old Q.No. 6a

Mutual Fund in Nepal

12. 2067 Q.No. 6a (Old)

Net asset value [5]

13. 2066 (I) Q.No. 6 b

Pension fund [5]

14. 2066 (II) Q.No. 6 a

Savings banks [5]

15. 2064 Q.No. 6 c

Finance companies in Nepal [5]

NUMERICAL PROBLEMS

16. 2070 Q.No. 11

The following is the incomplete balance sheet of Sukanya Saving and Credit Cooperative:

Balance Sheet as of July, 2014 (Rs. in million)

Assets	Rs.	Liabilities	Rs.
Interest-rate-sensitive assets (ISA)	150.00	Interest-rate-sensitive liabilities (ISL)	250.00
Non-rate-sensitive assets (NRS)	150.00	Non-rate-sensitive liabilities and equity capital	-
	300.00		300.00

a. What is Sukanya Saving and Credit Cooperative's total volume of non-rate-sensitive liabilities and equity capital?

b. What is the size of Sukanya Saving and Credit Cooperative's interest-sensitive GAP?

c. What is the GAP ratio for this cooperative?

d. Suppose market interest rates are expected to rise by one-half percentage point from 5.50 percent to 6.00 percent. How much interest income will this cooperative lose?

e. Instead of increase in interest rates one-half percentage point from 5.50 percent to 6.00 percent. Suppose interest rates are expected to decrease by one-half percentage point form 5.50 percent to 5.00 percent. How much interest income will be this cooperative gain?

f. What will happen in both (d) and (e) if interest-rate-sensitive assets amount to Rs. 250 million instead of Rs. 150 million and interest-rate sensitive liabilities amount to Rs. 150 million instead of Rs. 250 million? Justify your answer without calculation. [3×5 +5]

Ans: (a) Rs. 50 million (b) – Rs.100 million (c) 0.60 (d) –0.50 million (e) 0.50 million (f) – 0.50 million

17. 2070 Old Q.No. 6

(a) Mr. Kumar is a young businessman, now he is 27 years old. He wants to purchase term life insurance policies for Rs.100,000. Assume that the probability of dying rate is two percent. Find the fair premium if annual cost of money is 10 percent. [5]

Ans: Rs. 1,818.18

(b) Suppose, each life insurance policy at Rastriya Beema Sansthan has a value of Rs.1,000,000; that the one year survival probability for each policyholder is 95 percent, and there are 1500 policies. If each policy pays a premium of Rs.8,000. Calculate expected net revenue and portfolio risk. [5]

18. Ans: Rs. 45,000,000; Rs. 8,440,971.502070 Old Q.No. 9

Following information is given below: (Rs. in million)

XYZ Finance Company			
Assets	Rs.	Liabilities	Rs.
Cash & deposit			

Securities		Bank loan	
Less than 1 year	5	Less than 1 year	3
1 to 2 years	1	1 to 2 years	2
Greater than 2 years	1	Greater than 2 years	5
Consumer loan			
Less than one year	50		
1 to 2 years	20	Long term bonds	40
Greater than 2 years	15		
Physical capital	5	Capital	10
	100		100

i.   Find rate sensitive assets (RSA), rate sensitive liabilities (RSL) and Income Gap (GAP).
ii. Find the effect on income if interest rate rises by 1 percent.
iii. Find duration GAP if duration for assets is 1.16 years and duration for liabilities is 2.77 years.
iv. Find change in net worth as percentage of assets.
v.   Comment on the above results.   [20]

Ans: (i) Rs. 55 m; Rs. 43m, Rs. 12m (ii) Rs. 0.12m (iii) –1.3333 (iv) 1.2%

19. 2069 Q.No. 3

Suryoday Bank holds Rs. 56 million in interest rate sensitive assets (ISA) and Rs. 15 million interest rate sensitive deposits and other liabilities. Its non-rate sensitive liabilities (ISL) and equity capital total Rs. 62 million.

a. What is the bank's total non-rate sensitive asset?
b. What is the size of the bank's interest sensitive gap?
c. What is the bank's ratio of ISA to ISL?
d. If market interest rates rise from 6 percent to 6.25 percent, how much net interest income will the bank lose?
e. What would you suggest to the bank's management to do in such as case?   [5×2=10]

Ans: (a) Rs 21 (b) Rs 41 (c) 3.7333 (d) Rs 0.1025 million

20. 2069 Q.No. 10

a. A mutual fund charges a 5 percent upfront load plus reports an expense ratio of 1.34 percent. If an investor plans on holding a fund for 30 years, what is the average annual fee, as a percent, paid by the investor?
b. A mutual fund offers "A" shares which have a 5 percent upfront load and an expense ratio of 0.76 percent. The fund also offers "B" shares which have a 3 percent backend load and an expense ratio of 0.87 percent. Which shares make more sense for an investor looking over an 18 year horizon?
c. A mutual fund reported year-end total assets of Rs. 1,508 million and an expense ratio of 0.90 percent. What total fees is the fund charging each year?
d. A Rs. 1 million fund is charging a backend load of 1 percent, 12b – 1 fees of 1 percent, and an expense ratio of 1.9 percent. Prior to deducting expenses, what must the fund value be at the end of the year for Investor to break even?
e. To discharge short-term investing in its fund, the fund now charges a 5 percent upfront load. The same investor decides to put Rs. 50,000 back into the fund. Calculate the new number of shares outstanding. Assume the fund manager buys back as may round-lot shares of stock #4 with the cash.   [4+4+4+4+4]

Ans: (a) 1.5067% (b) 1.0378% & 1.0367% (c) Rs 13.572 million (d) Rs 1,029,664.64 (e) 389.09 shares & 706.05 shares

21. 2069 Old Q.No. 8

a. National Savings Bank holds Rs. 14 million in interest-rate-sensitive assets and Rs. 33.75 million in interest-rate-sensitive deposits and other liabilities.
   i.   If its' non-rate sensitive liabilities and equity capital total Rs. 15.5 million. What is company's total volume of non-rate sensitive assets?

    iii. Calculate the ratio of interest rate sensitive assets (ISA) to interest rate sensitive liabilities (ISL) for this savings institution.

    iv. If market interest rates rise from 6 percent to 6.25 percent, how much net interest income will company lose?

    v. What would you recommend that this thrift's management do?   [10]

b. An employee has just joined Ace Finance Company and a pension plan is set up in her name under which the company will contribute Rs. 2,000 per year and the employee herself will contribute Rs. 3,000 per year. ❶ How much will this year's contributed funds be worth in 10 years if the pension plan pledges a 12 percent annual return on each rupee saved? ❷ Suppose the employee plans to retire in 10 years. How much will be available in total at retirement if the company and the employee contribute the amounts noted above each year for the next 10 years? ❸ If this employee is vested with 90 percent of the accumulated funds and the pension promises an annual annuity rate of 12 percent given this employee's life expectancy, what annual retirement income can she expect?   [10]

    Ans: (a) (i) Rs 35.25 (ii) – Rs 19.75 (iii) 0.4148 (iv) – Rs 0.049375 million (b) (1) Rs 15,529 (2) Rs 98,272.72 (3) Rs 10,613.4538

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22. 2068 Q.No. 4

a. Suppose a group of 40-year old individuals purchase whole life insurance policies for Rs 100,000 each. Assume again that the annual mortality rate is constant at 2.5%.

    i. Compute the present value of the benefits the insurance company is expected to pay over the next 40 years, if the annual cost of money is 10%.

    ii. Calculate the fair constant annual premium payment.   [2.5+2.5]

b. An employee with 20 years of service at a company is considering retirement at some point in the next 10 years. The employer uses a flat benefit formula by which the employee receives an annual benefit payment of Rs 2,000 times the number of years of service. What is the employee's annual retirement benefit payment if he retires now, and in 10 years?   [2.5+2.5]

    Ans: (a) (i) Rs 24,447.75 (ii) Rs 2,941.79 (b) Rs. 40,000 and Rs. 60,000

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23. 2068 Old Q.No. 4

a. Mr. Hari is 25 years old. He wants to purchase term life insurance policies for Rs. 100,000. Assume that the probability of dying rate is two percent. Find the fair premium if annual cost of money is 10 percent.

b. Suppose, each life insurance policy at Nepal Insurance Company has a value of Rs.1,000,000; that the one year survival probability for each policyholder is 95 percent, and there are 1,500 policies. If each policy pays a premium of Rs. 8,000. Calculate expected net revenue and portfolio risk.

    Ans: (a) Rs 1,818.18 (b) Rs. 45,000,000 and Rs. 8,440,971.509

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24. 2067 Q.No. 4

a. Suppose that a person buys Rs. 50,000 of one year term life insurance, of which premium is Rs. 2,000. What is the implied probability that the person will die during the next year, assuming that the cost of money for the insurance company is 10 percent and that the insurance company applies a 20 percent load factor in the premium?   [5]

b. An employee contributes 10 percent of his Rs. 75,000 salary into the company's plan. The company matches 40 percent of the first 6 percent of the employee's contributions. The employee is in the 31 percent tax bracket and the plan expects to yield an 8 percent rate of return. What are the employee's own contributions and his plan return for one year?   [5]

    Ans: (a) 3.67% (b) Rs 103,500 and 94.09%

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25. 2067 Q.No. 4 (Old)

a. Mr. Kumar is a young businessman, now he is 27 years old. He wants to purchase term life insurance policies for Rs. 100,000. Assume that the probability of dying rate is two percent. Find the fair premium if annual cost of money is 10 percent.   [5]

b. Suppose, each life insurance policy at Rastriya Beema Sansthan has a value of Rs.1,000,000; that the one year survival probability for each policyholder is 95 percent, and there are 1500

policies. If each policy pays a premium of Rs. 8,000. Calculate expected net revenue and portfolio risk. [5]

Ans: (a) Rs 1,818.18 (b) Rs. 45,000,000 and Rs. 8,440,971.509

26. 2066 (I) Q.No. 8 b

The financial institution is able to generate Rs. 30 billion funds from various sources like deposits, borrowings, equity and money market mortgage. The interest and other costs involved in raising funds is Rs. 4 billion. Find the cost of raising funds. Also explain major factors that affect the cost of raising such funds. [10]

Ans: 13.33%

27. 2066 (I) Q.No. 9

Following information is given below: (Rs. in million)

XYZ Finance Company			
Assets	**Rs.**	**Liabilities**	**Rs.**
Cash and deposits	3	Commercial paper	40
Securities		Bank loan	
Less than 1 year	5	Less than 1 year	3
1 to 2 years	1	1 to 2 years	2
Greater than 2 years	1	Greater than 2 years	5
Consumer loan		Long term bonds	40
Less than one year	50		
1 to 2 years	20		
Greater then 2 years	15		
Physical capital	5	Capital	10
	100		100

i.   Find rate sensitive assets (RSA), rate securities liabilities (RSL), and income GAP (GAP).
ii. Find effect on income if interest rate rises by 1 percent.
iii. Find duration GAP if duration for assets is 1.16 years and duration for liabilities is 2.77 years.
iv. Find change in net worth as percentage of assets.
v.   Discuss all the above results. [20]

Ans: i. Rs 12 million; ii. 0.12 million; iii. - 1.3333; iv. 1.2%

28. 2066 (II) Q.No. 3

Jeevan Surakshya Insurance Co. has 2,000 policies, one year, NRs. 100,000 life insurance policies. The one-year survival probability for each policyholder is 99 percent. Policyholder must pay a premium of NRs. 1,600.

Required:
i.   What is expected net revenue for each policy?
ii. What is the total expected net revenue?
iii. What is the standard deviation of single life insurance policy?
iv. What is the standard deviation of the entire life insurance company? [10]

Ans: (i) Rs 600 (ii) Rs 1,200,000 (iii) Rs 19,899,748.74 (iv) Rs 444,971.91

29. 2066 (II) Q.No. 9 a

A financial institution plans to draw upon the following funds sources to make new loans and investments:

Sources of new funds	Volume of new funds generated	Interest costs and other expenses involved in raising new funds
Deposits	NRs. 200	NRs. 20
Money market borrowings	50	5
Equity capital	50	5
Total of new funds raised NRs. 300		Total cost of fund raising NRs. 30

What is the overall cost of raising NRs. 300 funds? What is the overall cost of raising of funds if the institution is raising NRs. 250, other things remain the same? [10]

Ans: 10% and 12%

30. 2066 (II) Q.No. 9 b

Suppose an employee of a company with a pension plan who is scheduled to retire in 15 years has NRs. 1,000 deposited in his retirement account this year. The pension plan promises him an 8 percent annual yield on each rupee set aside for retirement. The employee has access to all funds contributed in his name. Suppose this employee is vested with the full amount vested ratio of 1.00 and is promised an annual annuity (income) rate of 7 percent based on his life expectancy.

Required:

i.   What will be the value of funds contributed today at retirement?
ii. What will be total funds available at retirement?
iii. What will be his expected annual retirement income?

Ans: (i) Rs 3,172.20 (ii) Rs 29,324.20 (iii) Rs 821. 56

31. 2065 Q.No. 9

An employee earns Rs.100,000 salary and he prefers to make 30 percent of first 5 percent employer's contribution. The employee contributed 5 percent of his salary to provident fund and tax savings offered is 25 percent. Investment plan offered is Rs.10,000. The retirement year is 30 years and employee expects to earn 6 percent yield.

(a) Find employee's net of tax contribution.
(b) What is total investment plan?
(c) Find one year employee's return.
(d) Find value of contribution and net of tax contribution
(e) Find employer's contribution.

Ans: (a) Rs 3,750 (b) Rs 10,600 (c) 182.67% (d) Rs 790,580 & Rs 112,500 (e) Rs 1,500

32. 2064 Q.No. 4 a

The insurance company has a cost of money of 10% under one year term life insurance policy amount of Rs. 100,000. The policyholder is a 30 year old individual. The probability of dying over the next year is 0.133 percent. (a) Find the fair premium to be paid by the policyholder. (b) Suppose that your purchase will make 10 years payments of Rs. 10,000 starting 20 years from now. To receive the benefits, you have agreed to make 7 yearly payments each with the first payment due today. If the insurance company's annual cost of money is 10 percent, find the annual premium to be paid by annuitant. [5]

Ans: (a) Rs. 120.91 (b) Rs. 1,876.09

33. 2064 Q.No. 8 b

Standard Chartered Bank, Nepal limited offers loan at an annual interest rate of ten percent and pays four percent on its deposits. The amounts of each loan and deposits in 2060 are Rs. 16053.4 million and Rs. 18834.7 million respectively, and they are the bank's interest earning and interest paying accounts. What is the net interest income? What is the bank's interest spread? [5]

Ans: NII = RS. 851.952 million; Spread = 6%

34. 2064 Q.No. 8 c

Consider the following balance sheets:

Assets	Rs.	Duration (Years)	Liabilities	Rs.	Duration (Years)
Cash	100	0.00	CD, 1 year	600	1.00
Business loan	400	1.25	CD, 5 year	300	5.00
Mortgage loans	500	7.00	Equity	100	

The interest rate on the loans is assumed to be 13 percent, on deposits 11 percent and the cash assets are assumed to earn no interest. Compute the duration gap. [10]

Ans: 1.90 years

35. 2063 Q.No. 4

Suppose a life insurance company has 100,000 policyholders who are each 40 years of age. Each policyholder has a Rs. 1 million life insurance policy. Actuarial science has produced mortality tables that predict the expected death rater for 40 years is 4 per thousand. The

company's analysts have estimated it will earn an average of 3 percent on its portfolio of investments in coming year. It will cost Rs. 2.6 million to service the insurance needs of these 100,000 policyholders this year. Calculate:

i.   Expected deaths, expected, claims and present value of expected claims.

ii.   Estimated net premium per policyholder and gross premium.

iii.   Describe about results.   [10]

36. 2063 Q.No. 8 (a)

Suppose, a bank offers loan at an annual interest rate of ten percent and pays four percent on its deposits. The amounts of each loan and deposits in 2061 are Rs. 2000 million and Rs. 1800 million respectively, and they are the bank's interest earnings and interest paying account. What is the net interest income? What is the bank's interest spread?   [10]

37. 2063 Q.No. 9 (b)

Suppose an employee of company with a pension plan who is scheduled to retire in five years has Rs. 2,500 deposited in his retirement account this year. The pension plan promises him a 6 percent annual yield on each rupees set-aside for retirement. The employee has access to all funds contributed in his name. Suppose, this employee is vested with the full amount and vested ratio of 1.00 and is promised an annual annuity (income) rate of 5.5 percent based on her life expectancy.

i.   What will be value of funds contributed today at retirement?

i.   What will be total funds available at retirement?

iii.   What will be his expected annual retirement income?   [10]

38. 2062 Q.No. 4

Suppose each life insurance policy at Rastriya Beema Sansthan has a value of Rs. 10,00,000. The survival probability for each policyholder is 95 percent, and there are 1500 policies. If each policy pays a premium of Rs. 80,000, calculate expected net revenue and portfolio risk.   [10]

39. 2062 Q.No. 8 (b)

Standard Chartered Bank Nepal Limited offers loan at an annual interest rate of 10 percent and pays 4 percent on its deposits. The amounts of each loan and deposits in 2060 are Rs. 16053.4 million and Rs. 18834.7 million respectively, and they are the bank's interest earning and interest paying accounts. What is the net interest income? What is the bank's interest spread?   [8]

40. 2062 Q.No. 8 (c)

Suppose a bank has earning assets of Rs. 1000 million. The bank's projection cell for a net interest margin (NIM) recorded 8 percent over the next year. Since, the bank believes that interest rates may fluctuate by 200 basis points. The bank's management is willing to accept a variation of 50 basis points in NIM as a result of the expected change is interest rates. Find out the maximum range of the Funding Gap.   [8]

41. 2061 Q.No. 4 (a)

Mr. Narayan is a student attaining the age of 22 years old. He wants to purchase term life insurance policies for an amount equivalent to Rs. 100,000. Assume that the probability of dying rate is 2 percent. Find the fair premium if annual cost of money is 10 percent.   [5]

42. 2061 Q.No. 4 (b)

Suppose, each life insurance policy at XYZ Insurance Corporation has a value of Rs. 1,000,000 that the one year survival probability for each policyholder is 97 percent, and there are 2000 policies. If each policy pays a premium of Rs. 10,000 annually, calculate expected net revenue and portfolio risk.   [5]

43. 2061 Q.No. 8 (a)

Suppose a bank offers loan at an annual interest rate of ten percent and pays four percent on its deposits. The amounts of each loan and deposits in 2061 are Rs. 2000 million and Rs. 1800 million respectively, and they are the bank's interest earning assets and interest paying liabilities. What is the net interest income? What is the bank's interest spread?   [8]

44. 2061 Q.No. 8 (b)

Suppose a bank has earning assets of Rs. 200 million. The bank's projection cell estimated a net interest margin (NIM) of 6 percent over the next year. Since the bank believes that the interest rates may fluctuate by 200 points, the banks' management is willing to accept variation of 50 basis points in net interest margin as a result of expected change in interest rate. Find out the maximum range of the Funding Gap. [7]

45. 2060 Q.No. 2

The manager of a Nepal Life Insurance Company is trying to decide what annual premium to charge a group of policyholder, each of whom has just reached his or her 50th birthday. A check of mortality tables indicates that, for every million persons born 50 years ago, 1 percent die, on average, sometime during their 50th year, The Company has 10,000 policyholders in this age bracket and each has taken out a Rs. 500,000 life insurance policy.

(a) Estimate the probable amount of death benefit claims against the company?

(b) How much must be charged in premiums form each policyholder just to cover these expected claims? Assume that the company can earn an average of 10 percent on its portfolio of investments.

(c) Suppose the company has operating expenses (plus a target profit) on sales to these policyholders of Rs. 500,000. What annual premium must be charged each policyholder to recover expenses and meet expected benefit claims? [10]

46. 2060 Q.No. 9 (b)

Sunset Savings Bank holds Rs. 56 million in interest-rate-sensitive assets and Rs. 135 million in interest-rate-sensitive deposits and other liabilities.

i. If its' non-rate-sensitive liabilities and equity capital total Rs. 62 million. What is company's total volume of non-rate-sensitive assets?

ii. What is the size of company's interest-sensitive GAP?

iii. Calculate the ratio of interest rate sensitive assets (ISA) to interest rate sensitive liabilities (ISL) for this savings institution.

iv. If market interest rates rise from 6 percent to 6.25 percent, how much net interest income will company lose?

v. What would you recommend that this thrift's management do?

5. REGULATION OF BANKS AND FINANCIAL INSTITUTIONS

1. 2067 Q.No. 7

Although many economists believe that regulations of financial institutions have adverse impact on their operations, service and performance, in practice, however, there are stringent regulations of financial institutions. In the light of this statement, what do you think are the justifications for the strict regulatory measures used in financial institutions? [10]

6. MONEY MARKET INSTRUMENTS

THEORETICAL QUESTIONS

■ Write short notes on:

1. 2061 Q.No. 6 (a)

Repurchase Agreement [5]

NUMERICAL PROBLEMS

2. 2070 Q.No. 7

a. A government securities dealer is currently borrowing Rs. 50 million from a money-centre bank using repurchase agreement based on T-bills. If today's RP rate is 7 percent, how much in interest will the dealer owe the bank for overnight loan?

b. Suppose that a dealer borrows cash through Rs. 80 million RP from a manufacturing company for one day. If the dealer will have to pay Rs. 7,000 in interest on this loan, what is the current RP loan rate?

c. Suppose that a dealer borrows cash through Rs. 50 million RP from a commercial bank and pays Rs. 25,000 in interest on this loan. If current RP rate is 6 percent, what is the number of days loaned?

d. Suppose that a dealer borrows certain amount of loan through RP from a commercial bank for 6 days and pays Rs. 10,000 in interest on this loan. If current RP rate is 6 percent, what is the amount of loan?   [2.5×4]

Ans: (a) Rs. 9,722.22 (b) 3.15% (c) 3 days (d) Rs. 10,000,000

3. 2070 Old Q.No. 5b

Calculate the holding period yield if the investor buys a new 12 month T-bill at a discount rate of 7.5 percent. Sixty days later, the bill is sold at a price that results in a discount rate of 7 percent. [5]

Ans: 10%

4. 2069 Q.No. 4

Assume that an investor buys 91-day bill at a price that results in discount rate (DR) of 4 percent. As is typical, the bill's price begins to rise (and DR to fall) as it approaches maturity. Twenty days after purchase, the investor needs immediate cash and is forced to sell at a price that results in a DR of 3.50 percent.

a. What is the investor's holding period yield?   [2.5]

b. Assume that the investor wants to achieve a 6 percent target yield. How many days the investor to hold the bill for 6 percent target yield.   [5]

c. Interpret the above answer.   [2.5]

Ans: (a) 5.775% (b) 20 days

5. 2069 Q.No. 5

The Central Bank of Nepal has Rs. 100 million in 91-day Treasury bills to sell. It receives many non-competitive bids and competitive bids. The four competitive bids received by the Bank are as follows:

Bidder	Bid Amount	Price
1	Rs. 30 million	Rs. 96
2	Rs. 30 million	Rs. 95
3	Rs. 20 million	Rs. 94
4	Rs. 10 million	Rs. 94

a. What volume of T-bills will non-competitive bidders receive? Who will receive T-bills at what price and why?   [4]

b. What quantity of T-bills will competitive bidders receive? Who will receive them at what price and why?   [6]

Ans: (a) 15 million; Rs 95.0588; (b) 1= Rs. 30; 2 = Rs. 30; 3 = Rs. 16.67; 4 = Rs. 8.33

6. 2069 Old Q.No. 4b

Calculate the holding-period yield if the investor buys a new 12-month T-bill at a discount rate of 7.5 percent. Sixty days later, the bill is sold at a price that results in a discount rate of 7 percent.   [5]

Ans: 10%

7. 2068 Q.No. 6

a. Assume that 45% of a Treasury bill auction was sold for Rs 998 per Rs 1,000 value, 35 percent was sold for Rs 997, and the last 20 percent was sold for Rs 996. What would be the weighted average price paid by a non-competitive bid?   [2.5]

b. A commercial paper note with Rs 1 million par values and maturing in 60 days has an expected Discount Return (DR) at maturity of 6 percent. What was its purchase price? What is the note's expected coupon equivalent (investment return) yield?   [2.5+2.5]

c. A money market security that has a par value of Rs 10,000 sells for Rs 8,816.60. Given that the security has a maturity of two years, what is the investor's required rate of return?   [2.5]

8. 2068 Old Q.No. 5

a. Mr. Dhakal is going to purchase 180-day money market instrument with a face value of Rs. 1,000 that carries a discount yield of 12 percent. Find the rupee discount for the instrument and the actual price.

b. Consider the following information:
  1. Calculate the discount rate on each T-bill and
  2. Convert that rate to the appropriate investment (or coupon-equivalent) yield.
      i. A new three-month T-bill sells for Rs. 98.25 on a Rs. 100 basis.
      ii. The investor can buy a new 12-month T-bill for Rs. 96 on a Rs. 100 basis.
      iii. A 30-day bill is available from a Government securities dealer at a price of Rs. 97.50 (per Rs. 100). [10]

Ans: (a)Rs 60 and Rs 940 (b) (i) (1) 7%(2) 7.22% (ii) (1) 4%(2) 4.22% (iii) (1) 30% (2) 31.20%

9. 2067 Q.No. 5

a. The Central Bank of Nepal is selling 91-day T-bills with a face value of Rs. 10,000 for Rs. 8,800. If the investor holds them until maturity, what would be the yield? [2.5]

b. If investors require a 6 percent annualized return on a six-month T-bill, this reflects a 3 percent un-annualized return over six months. Provided this information, how much is this investor willing to pay for a six-month T-bill? [2.5]

c. An investor paid Rs. 98,000 for a Rs. 100,000 T-bills maturing in 120 days. If he held it until maturity, what would be the T-bill yield and the T-bill discount? [2.5+2.5=5]

Ans: (a) 54.7% (b) Rs 9,708.74 (c) 6.21% and 6.00%

10. 2067 Q.No. 10

A dealer in government securities currently holds Rs. 875 million in 10-year Treasury bonds and Rs. 1,410 million in six-month Treasury bills. Currents yields on the T-bonds average 7.15%, while 6-month T-bill yields average 3.28%. The dealer is currently borrowing Rs. 2,300 million through 1-week repurchase agreements at an interest of 3.20%. What is the dealer's expected (annualized) carry income? Suppose that 10-year T-bond rates suddenly rise to 7.30%, T-bill rates rises to 5.40% and interest rates on comparable maturity repurchase agreements (RPs) increase to 5.55 percent. What will happen to the dealer's expected (annualized) carry income and why? Should this dealer have moved to a long position or a short position before the interest rate change just described? Should the dealer alter his or her borrowing plans in any way? Discuss your answers. [20]

Ans: Rs 35.2105 and Rs 12.365

11. 2067 Q.No. 5 (Old)

(a) Consider a 180 days money market instrument with a face value of Rs. 1,000 that carries a discount yield of 12 percent. Find the rupee discount for the instrument and the actual price. [5]

(b) From the following sets of figures.
  (1) Calculate the discount rate on each T-bill and (2) Convert that rate to the appropriate investment (or coupon-equivalent) yield.
  i. A new three-month T-bill sells for Rs. 98.25 on a Rs. 100 basis.
  ii. The investor can buy a new 12-month T-bill for Rs. 96 on a Rs. 100 basis.
  iii. A 30-day bill is available from a Government securities dealer at a price of Rs. 97.50 (per Rs. 100). [5]

Ans: (a)Rs 60 and Rs 940 (b) (i) (1) 7%(2) 7.22% (ii) (1) 4%(2) 4.22% (iii) (1) 30% (2) 31.20%

12. 2066 (I) Q.No. 3 a

i. An investor decided to purchase a 91 days Treasury bill for Rs. 9,850. When it matures, the bill will be worth Rs. 10,000. What is the bill's annualized yield?

ii. If the bill is sold before it matures on 31 days during which face value of bill amounted to Rs. 9,948. What do you earn on the bill? [5]

Ans: (i) 6.09%; (ii) 6.05%

13. 2066 (I) Q.No. 3 b

Suppose you buy a six-month (180 days) bill at a price that results in a discount of 8 percent. Sixty days after purchase, you need cash immediately to sell at a price that results fall in discount rate to 7.2 percent. What is the change is discount rate over holding period and also find holding period yield on bond? [5]

Ans: 1.6% and 9.6%

14. 2066 (II) Q.No. 4

An investor buys 91-day bill at a price that results in a discount rate of 4 percent. As typical, the bill's price begins to rise (and discount rate to fall) as it approaches to maturity. Twenty days after purchase, the investor needs immediate cash and is forced to sell at a price that results in a discount rate of 3.50 percent.

Required:

i. What is the investor's holding period yield?
ii. If the investor wants to achieve a 6 percent target field, how many days he has to hold bills for 6 percent target yield? [10]

Ans: (i) 5.775% (ii) 20 days

15. 2065 Q.No. 4 b

Auction price for a T - Bill is Rs.980 on a Rs.1000 face value. The T-Bill is expected to mature in 91 days. 60 days after purchase, the bond is sold at a discount of 4 percent. Calculate

(i)   Discount yield on T- Bill
(ii) Coupon equivalent yield
(iii) Price of T - Bill after 60 days
(iv) Holding period return

Ans: 7.91% (b) 8.19% (c) 996.56 (d) 1.69%

16. 2064 Q.No. 4 b

The auction price for a treasury bill is Rs. 970 on a Rs. 1,000 par value and the bill matures in 91 days. Forty five days after purchase, the investor needs fund and to sold at a discount rate of 3.5 percent. Calculate:

(i)   discount yield on treasury bill
(ii) selling price of treasury bill after forty five days.
(iii) holding period return.
(iv) annual rate of return on treasury bill. [5]

Ans: (i) 11.87% (ii) Rs. 995.53 (iii) 2.63% (iv) 23.44%

17. 2064 Q.No. 5 b

ABC Corporation purchase a 180 days negotiable Certificate of Deposit (CD) with a Rs. 5 million denomination from National Bank Limited and Trust, bearing a 7 percent annual yield. How much in interest will the bank have to pay when this CD matures? What amounts in total will be bank has to pay back to National Bank Limited at the end of 180 days. [5]

Ans: I = Rs. 0.175 million, Total payment = Rs. 5.175 million

18. 2063 Q.No. 5 (a)

Consider a 180 day money market instrument with a face value of Rs. 1,000 that carries a discount yield of 12 percent, find the rupee discount for the instrument and the actual price. [5]

19. 2063 Q.No. 5 (b)

The auction price for a treasury bill is Rs. 950 on a Rs. 1000 par value and the bill matures in 180 days. Calculate:

i. Discount yield on Treasury bill
ii. Yield to maturity [2.5+2.5]

20. 2062 Q.No. 5

The auction price for a treasury bill is Rs. 970 on a Rs. 1000 par value and the bill matures in 91 days. Forty-five days after purchase, the investor needs fund and sold at a discount rate of 3.5 percent. Calculate:

i. Discount yield on Treasury bill.
ii. Selling price of Treasury bill after forty-five days.

iii. Holding period return

iv. Annual rate of return on Treasury bill [10]

21. 2062 Q.No. 6 (b)

ABC Corporation purchases a 180 days negotiable Certificate of Deposit (CD) with a Rs. 5 million denomination from National Bank Limited and Trust, bearing a 7 percent annual yield. How much in interest will the bank have to pay when this CD matures? What amounts in total will the bank has to pay back to National Bank Limited at the end of 180 days? [5]

22. 2061 Q.No. 5 (a)

Consider a 180-day money market instrument with a face value of Rs. 1,000 that carries a discount yield of 12 percent. Find the rupee discount for the instrument and the actual price. [5]

23. 2061 Q.No. 5 (b)

The auction price for a treasury bill is Rs. 950 on a Rs. 1000 par value and the bill matures in 180 days. Calculate:

(a) Discount yield on Treasury bill

(b) Yield to maturity

24. 2060 Q.No. 5

Calculate the holding period yield for the following situations:

(a) The investor buys a new 12-month T-bill at a discount rate of 7.5 percent. Sixty days later, the bill is sold at a price that results in a discount rate of 7 percent.

(b) A large manufacturing corporation acquired a T-bill in the secondary market 30 days from its maturity but is forced to sell the bill 15 days later. At time of purchase, the bill carried a discount rate of 8 percent, but it was sold at a discount rate of 7.75 percent. [10]

7. INTEREST RATE IN FINANCIAL SYSTEM

THEORETICAL QUESTIONS

1. 2066 (II) Q.No. 5 a

Briefly explain the main sources of loanable funds in the money and capital markets. [5]

■ **Write short notes on:**

2. 2061 Q.No. 6 (c)

Relationship between security prices and interest rates. [5]

NUMERICAL PROBLEMS

3. 2070 Old Q.No. 5a

A depositor leaves her funds in the amount of Rs.5,000 in a credit union deposit account for a full year but then withdraws Rs.1000 after 270 days. At the end of the year credit union pays her Rs.300 in interest. What is this depositor's daily average balance and annual percentage yield (APY)? [5]

Ans: 6.33%

4. 2070 Old Q.No. 8

An investor is considering the purchase of the following bonds:

Bond	Maturity period	Coupon rate	Par value
'A'	5 years	10%	NRs.1,000
'B'	8 years	12%	NRs.1,000

Required:

i. If the investor requires a yield to maturity of 14% on bond, what does he believe in a fair current value of bonds?

ii. If bond 'A' is selling for a price of NRs.900, what is its promised yield to maturity?

iii. What is the duration of bond 'A' and bond 'B'? [20]

Ans: (i) Rs. 862.71; Rs. 907.268 (ii) 12.836% (iii) 4.0999 yrs, 5.438 yrs

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5.   2069 Q.No. 6

a.   What is duration of a 2-year zero-coupon bond that pays an annual coupon of 10 percent and has a current yield-to-maturity of 12 percent? Use Rs. 1,000 as face value.   [4]

b.   What is the duration of two-year zero coupon bond that is yielding 11.5 percent? Use Rs. 1,000 as the face value.   [4]

c.   Given these answers, how does duration differ from maturity? Discuss.   [2]

Ans: 1.9055 years (b) 2 years

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6.   2069 Q.No. 11

a.   Calculate the price elasticity of a 15–year bond around its Rs. 1,000 par value and 10 percent coupon rate if market interest rates on comparable securities drop to 6 percent. The market price of the bond at a 6 percent yield-to-maturity (YTM) is Rs. 1,392. Suppose now that the YTM rises to 14 percent. If the bond's price falls to Rs. 751.8, what is the bond's price elasticity? Altogether compute three elasticities if YTM decreases from 10 percent to 6 percent, if YTM increases from 6 percent to 14 percent, and if YTM increases to from 10 percent to 14 percent.   [4+4+4]

b.   Bond A has duration of 10 years and Bond B has duration of 6 years. Each bond has a value of Rs. 1,000. The required interest rate is currently 8 percent. If the required rate changes to 8.01 percent, by how much will each bond change in value?   [4+4]

Ans: (a) –0.98; –0.3449; –0.6205 (b) 0.0926% & 0.0556%

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7.   2069 Old Q.No. 4a

A depositor leaves her funds in the amount of Rs. 5,000 in a credit union deposit account for a full year but then withdraws Rs. 1,000 after 270 days. At the end of the year the credit union pays her Rs. 300 in interest, what is this depositor's daily average balance and annual percentage yield (APY)?   [5]

Ans: Rs 4,739.73; 6.33%

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8.   2069 Old Q.No. 5

a.   Suppose the total demand for money (MD) is described by the following equation:

MD = 60 – 5i

Where, "i" is the prevailing market interest rate. The total supply of money (MS) is described by the following equation:

MS = 5 + 6i

According to the liquidity preference theory of interest rates, what is the prevailing equilibrium rate of interest?   [5]

b.   Calculate the value of duration for a 4-year, Rs. 1000 par value Nepalese government bond purchased today at a yield to maturity of 15 percent. The bond's coupon rate is 12 percent, and it pays interest once a year at year's end. Now suppose the market interest rate on comparable securities falls to 14 percent. What percentage change in this bond's price will result?   [5]

Ans: (a) 5% (b) 3.3732 years; 2.99%

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9.   2068 Q.No. 7

Current market price of a corporate bond is Rs 850. Maturity period is 3 years. Coupon rate is 11 percent with a face value of Rs 1,000. What is Yield-To-Maturity (YTM) of the bond? What is the duration of the bond? Interpret your answers.   [4+4+2]

Ans: 17.8869% and 2.6874 years

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10.   2068 Q.No. 11

A six-year maturity bond pays 8 percent coupons with an 8 percent yield to maturity had duration of 5 years. If investor wants to immunize the interest rate risk, what is the future value of the cash flows at 8 percent? At 9 percent? and at 7 percent? Interpret your answers.[6+6+6+2]

Ans: Rs 1,469.33; Rs 1,469.57; Rs 1,469.42

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11.   2068 Old Q.No. 8c

An AAA-rated corporate bond has a current market price of Rs. 900 and will pay Rs. 100 in interest for 10 years. If its par value is Rs. 1,000, what is its yield to maturity? Suppose the investor plans to sell it in 4 years for Rs. 925. What would be his or her holding period return?

Ans: 11.70%

12. 2068 Old Q.No. 9b

An investor is considering the purchase of the following bonds:

Bonds	Maturity period	Coupon interest rate	Par value
A	5 years	10%	Rs. 1,000
B	8 years	12%	Rs. 1,000

i.   If the investor required a yield to maturity of 14 percent on bond, what does he believe is a fair current value of bonds?

ii. If bond A is selling for a price of Rs. 900, what is its promised yield to maturity?

iii. What is the duration of bond A and bond B?   [10]

Ans: V_d (A) = Rs. 862.71; V_d (B) = Rs. 907.268 (b) YTM_A = 12.8357%

(c) D_A = 4.0999 years; D_B = 5.438 years

13. 2067 Q.No. 6

Consider the following cash flows. All the market interest rates are 12 percent.

Year	0	1	2	3	4
Cash Flow (Rs.)		160	170	180	230

a.   What price would you pay for these cash flows?

b.   What is the duration of these cash flows?   [5+5=10]

Ans: (a) Rs 552.677 (b) 2.5023 years

14. 2067 Q.No. 8c (Old)

An AAA-rated corporate bond has a current market price of Rs. 900 and will pay Rs. 100 in interest for 10 years. If its par value is Rs. 1,000, what is its yield to maturity? Suppose the investor plans to sell it in 4 years for Rs. 925. What would be his or her holding period return is?

Ans: 11.70%

15. 2067 Q.No. 9b (Old)

Suppose, there are two bonds namely x and Y having the same face value of Rs. 1,000 and same maturity of 10 years. But their coupon interest rates are different since bond X has 8 percent and bond Y has 12 percent. The prevailing market yield is 10 percent. Calculate:

i.   Current value of bonds   ii.   Current yield of bonds

iii. Duration of bonds   iv.   Interest rate elasticity of bonds   [10]

Ans: (i) Rs 877.068; Rs 1,122.852 (ii) 9.12%; 10.69%

(iii) 7.044 years; 6.5357 years (iv) 7.044; 6.5357

16. 2066 (I) Q.No. 4

Suppose an investor is interested in purchasing a 10 year bond, par value of Rs. 1,000 promising its holder a 10 percent annual coupon. If interest rate falls to 5 percent, then this 10 percent bond will have a price of Rs. 1,389.70 and if interest rates climb to 15 percent, bond's price will be Rs. 745.10. What is price elasticity of bond measured form par value?   [10]

Ans: - 0.779 adn - 0.510

17. 2066 (I) Q.No. 5

a.   You are interested in purchasing Rs. 1,000 par value bond that has a term to maturity of 10 years, a 10 percent annual coupon rate and 12 percent yield to maturity based on current price of Rs. 887.10. What is the duration of bond?   [5]

b.   What is the percentage change in price of security if interest rate changes from 10 to 12 percent?   [5]

Ans: (a) 6.5505 years (b)- 11.29%

18. 2066 (II) Q.No. 5 b

A NRs. 1,000 par value bond pays Rs. 80 per year interest for 10 years and the bond is currently selling at NRs. 800. What is the current yield on the bond?   [5]

Ans: 10%

19. 2066 (II) Q.No. 8

An investor is considering the purchase of the following bonds:

Bond	Maturity period	Coupon rate	Par value
A	5 years	10%	NRs. 1,000
B	8 years	12%	Nrs. 1,000

Required:

i. If the investor required a yield to maturity of 14% on bond, what does he believe in a fair current value of bonds?

ii. If bond 'A' is selling for a price of NRs. 900, what is its promised yield to maturity?

iii. What is the donation of bond 'A' and bond 'B'?

Ans: V_d (A) = Rs. 862.71; V_d (B) = Rs. 907.268 (b) YTM_A = 12.8357%
(c) D_A = 4.0999 years; D_B = 5.438 years

20. 2065 Q.No. 4 a

A bond has a face value of Rs.1000 coupon interest rate is 12 percent and interest is paid semi-annuity. The current price of the bond is Rs.900 and it matures in eight years: Find the yield to first call if the bond is callable in three years at 110 percent of face value.

Ans: 19.1568%

21. 2065 Q.No. 5 b

Suppose Macaulay's Duration is 4 32 years. Percentage change in interest rate (IR) is 0 2 percent which means interest rate changes from 9 percent to 9.2 percent (increase by 20 points). What will be percentage change in bond price given 9 percent coupon rate paid semi-annually?

Ans: – 0.8268%

22. 2065 Q.No. 8

a. A bond matures in two years with a par value of Rs.1,000. The coupon rate is 8 percent that is paid semi-annually. The bond yields 12 percent. What is the approximate YTM? Assuming that the same bond yields 10 percent what is approximate YTM ?

b. A corporate bond has a current value of Rs 850 and sold it for Rs 970. If a nominal coupon interest rate is 8% on Rs 1000 par value. The bond is hold for three years. Find holding period return and annual holding period return.

c. Current market price of bond is Rs.850. Maturity period is 3 years. Coupon rate is 11 percent with a face value of Rs.1000.

    (i) Find YTM using trial and error method.

    (ii) Find duration of bond.

Ans: (a) Rs 964.54. (b) 12.49% (c) (i) 17.8869% (ii) 2.6874 years

23. 2064 Q.No. 5 a

What is the expected return on corporate bond with an annual coupon of 10 percent,, a current market value of Rs. 1050, and a probability of default on the interest of 5 percent? The bond matures at the end of the year at par Rs. 1000.   [5]

Ans: 4.29%

24. 2064 Q.No. 9

An investor is considering the purchase of the following bonds:

Bonds	Maturity period	Coupon interest rate	Par value
A	5 years	10%	Rs. 1,000
B	8 years	12%	Rs. 1,000

(a) If the investor requires a yield to maturity of 14 percent on bond, what does he believe is a fair current value of bonds?

(b) If bond A is selling for a price of Rs. 900, what is its promised yield to maturity?

(c) What is the duration of bond A and bond B?   [20]

Ans: V_d (A) = Rs. 862.71; V_d (B) = Rs. 907.268 (b) YTM_A = 12.8357%
(c) D_A = 4.0999 years; D_B = 5.438 years

25. 2063 Q.No. 8 (b)

An AAA-rated corporate bond has a current market price of Rs. 850 and will pay Rs. 90 in interest for 8 years. If its par value is Rs. 1,000, what is yield to maturity? Suppose the investor plans to sell it in 4 years for Rs. 925. What will be his or her holding period return?   [10]

26. 2063 Q.No. 9 (a)

Suppose there are two bonds namely X and Y having the same face value of Rs. 1000 and same maturity of 10 years. But their coupon interest rates are different since bond X has 8

27. 2062 Q.No. 6 (a)

What is the expected return on corporate bond with an annual coupon of 10 percent, a current market value of Rs. 1050, and a probability of default on the interest is 5 percent? The bond matures at the end of the year at par Rs. 1000. [5]

28. 2062 Q.No. 9

An investor is considering the purchase of the following bonds:

Bonds	Maturity period	Coupon interest rate	Par value
A	5 years	10%	Rs. 1,000
B	8 years	12%	Rs. 1,000

i.   If the investors required a yield to maturity of 14 percent on bond, what does he believe is a fair current value of bonds?
ii. If bond A is selling for a price of Rs. 900, what is its promised yield to maturity?
iii. What is the duration of bond A and bond B? [20]

Ans: V_d (A) = Rs. 862.71; V_d (B) = Rs. 907.268 (b) YTM_A = 12.8357%
(c) D_A = 4.0999 years; D_B = 5.438 years

29. 2061 Q.No. 8 (c)

An AAA-rated corporate bond has a current market price of Rs. 850 and will pay Rs. 90 in interest for 8 years. If its par value is Rs. 1,000, what is its yield to maturity? Suppose the investor plans to sell it in 4 years for Rs. 925. What would be his or her holding period return?[5]

30. 2061 Q.No. 9 (a)

Suppose there are two bonds namely X and Y having the same face value of Rs. 1000 and same maturity period of 10 years. But their coupon interest rates are different since bond X has 8 percent and bond Y has 12 percent. The prevailing market yield is 10 percent. Calculate the current value and Macaulay's duration for both bonds. [10]

31. 2061 Q.No. 9 (b)

A bond is available with a price of Rs. 930 that promises to pay Rs. 1000 one year from now with no intervening payments. What kind of a bond is this and what is its yield to maturity? [10]

32. 2060 Q.No. 3 (a)

Preferred stock for National Construction Corporation is issued at par for Rs 50 per share. If stockholders are promised an 8 percent annual dividend, what was the stock's current yield at time of issue? If the stock's market price has risen to Rs. 60 per share, what is the new current yield? [5]

33. 2060 Q.No. 3 (b)

An AAA-rated corporate bond has a current market price of Rs. 800 and will pay Rs. 100 in interest for 10 years. If its par value is Rs. 1,000, what is its yield to maturity? Suppose the investor plans to sell it in 5 years for Rs. 900. What would be his or her holding period yield be?[5]

34. 2060 Q.No. 4 (a)

Calculate the price elasticity of a 15-year bond around its Rs. 1000 par value and 10 percent coupon rate if market interest rates on comparable securities drop to 6 percent. The market price of the bond at a 6 percent yield to maturity is Rs. 1392. Suppose now that the yield to maturity climbs to 14 percent. If the bond's price falls to Rs. 751.8, what is the bond's price elasticity? Altogether compute three elasticities if YTM decreases from 10% to 6%, if YTM increases from 6% to 14%, and if YTM increases from 10% to 14%. [5]

35. 2060 Q.No. 4 (b)

A government bond is scheduled to mature in five years. Its coupon rate is 10 percent with interest paid to holders of record at the conclusion of each year. This Rs. 1000 par value carries a current yield to maturity of 10 percent. What is its duration? [5]

8. CONSUMERS AND BUSINESS IN FINANCIAL MARKETS

THEORETICAL QUESTIONS

1. 2069 Old Q.No. 7

The regulation of financial institutions has done more harm than good for both financial institutions themselves and for the public they serve. Discuss.   [20]

2. 2068 Old Q.No. 9a

Explain the major capital market instruments with an emphasis on those currently popular in Nepal.   [10]

3. 2066 (I) Q.No. 2 b

What creative financing techniques are available in financial market to promote consumer borrowing in Nepal?   [6]

4. 2064 Q.No. 3

What factors do lending institutions usually look at when evaluating a consumer loan application? Why?   [10]

5. 2063 Q.No. 1

Explain the relative size and importance of major financial institutions affecting financial market.[10]

6. 2062 Q.No. 1

In the absence of financial market, can there be efficient transfer of funds between savers and users? In this regard, do you think that financial market is efficiently functioning in Nepal? Comment.   [10]

7. 2062 Q.No. 3

How the lending institutions evaluate consumer loan application? Give examples in your explanation.   [10]

8. 2061 Q.No. 1

In what way can financial intermediaries be considered as good substitutes for financial market? Explain.   [10]

■ **Write short notes on:**

9. 2070 Q.No. 8b

Credit card   [5]

10. 2070 Q.No. 8c

Bond market   [5]

11. 2069 Old Q.No. 6b

Residential mortgages   [5]

12. 2069 Old Q.No. 6c

Efficient market hypothesis   [5]

13. 2068 Q.No. 8c

Collateralized mortgage obligations   [5]

14. 2068 Old Q.No. 6b

Nepal Stock Exchange

15. 2067 Q.No. 8b

Home equity loans   [5]

16. 2067 Q.No. 6b (Old)

Corporate stock market   [5]

17. 2066 (I) Q.No. 6 a

Mortgage market   [5]

18. 2066 (II) Q.No. 6 b

Credit and debit cards   [5]

19. **2066 (II) Q.No. 6 c**

The third market [5]

20. **2065 Q.No. 6 b**

Consumers in financial markets as lenders and borrowers of funds.

21. **2065 Q.No. 6 c**

Marketing corporate bonds

22. **2064 Q.No. 6 b**

Foreign bond [5]

23. **2063 Q.No. 6 (a)**

Residential mortgage market [5]

24. **2063 Q.No. 6 (b)**

Trading system in listed securities [5]

25. **2063 Q.No. 6 (c)**

Random walk hypothesis [5]

26. **2060 Q.No. 6 (b)**

Business borrowing [5]

27. **2060 Q.No. 6 (c)**

Random walk [5]

28. **2060 Q.No. 6 (a)**

Mortgage market [5]

NUMERICAL PROBLEMS

29. **2067 Q.No. 11**

a. A company borrows Rs. 10 million from a bank at a 12 percent prime rate. If the bank required the company to hold 20 percent of the amount of the loan on deposit as compensating balance, what is effective rate of interest on the loan? [5]

b. A bank quotes one of its corporate customers a loan at prime plus four percentage points when prime is 12 percent. Another bank, posting the same prime rate, quotes the same customer a loan at 1.25 times prime. Which loan would you recommend the company to take? Suppose both loans would you recommend the company to take? Suppose both loans carry floating rates and prime increases to 16 percent. Which loan is the better deal? Which would be the better deal if prime rises to 18 percent and why? Also show your calculations? [5+5+5=15]

Ans: (a)15% (b) 16%; 15%; 20%; 20%; 22%; 22.5%

9. FUTURE OF THE FINANCIAL SYSTEM

THEORETICAL QUESTIONS

1. **2070 Q.No. 3**

Explain the forces that are affecting the financial system of markets and institutions today. [10]

2. **2070 Old Q.No. 1**

Discuss the challenges and opportunities presented by recent trends in financial system. [10]

3. **2070 Old Q.No. 7**

Critically examine the social, economic and demographic forces and trends reshaping the financial system. [20]

4. **2069 Q.No. 7**

Discuss the recent trends that are taking place in the Nepalese financial system. [10]

5. **2069 Old Q.No. 1**

What are the trends sweeping through today's financial system? Explain the economic, demographic, social and technological forces affecting financial institutions, financial markets, and the financial system. [10]

6. **2068 Q.No. 9**

Critically examine the role of social, economic, demographic and technological factors in shaping the financial system in Nepal.   [20]

7. **2068 Old Q.No. 7a**

Why is each function of the financial system important to households, business, and government?   [20]

8. **2067 Q.No. 2 (Old)**

What major trends are reshaping financial institutions' regulation today? Why has capital regulation become so important?   [10]

9. **2066 (I) Q.No. 7**

Critically examine the social, economic and demographic forces and trends reshaping the financial system.   20

10. **2066 (II) Q.No. 1**

Explain the challenges and opportunities presented by recent trends in financial system.   [10]

11. **2061 Q.No. 7**

Critically examine the future of financial system in Nepal in the light of the various financial economic liberalizations initiated by the government in our country.   [20]

12. **2060 Q.No. 1**

Explain the trends sweeping through today's financial system? Describe the opportunities, threats, and challenges presented by the recent trends.   [10]

■ **Write short notes on:**

13. **2067 Q.No. 8a**

Financial innovation   [5]

14. **2067 Q.No. 8c**

Recent trends in financial system   [5]

■ **TRUE AND FALSE**

1. **2070 Q.No. 1**

Indicate whether the following statements are 'True or False", support your answer with reasons:

a. Eurodollar bond is a bond issued by European Union.

b. Decrease in risk of financial securities shift supply curve down and to the right and increase equilibrium interest rate.

c. Nepal Rastra Bank as a regulator requires commercial banks in Nepal to maintain 10 percent capital adequacy ratio as per international practice.

d. Mortgage securities are widely traded in Nepal Stock Exchange.   [2.5 × 4]

         Ans: (a) False (b) True (c) True (d) False

2. **2069 Q.No. 2**

Whether the following statements are 'true' or 'false'. Justify your answer.   [5×2=10]

a. The over-the-counter (OTC) market is very competitive.   *(Introduction)*

b. Nepal Rastra Bank uses open market operations as a tool to control the liquidity of commercial banks.   *(Central Banking, Monetary...)*

c. The AAA–rated notes offer investors highest protection against loan defaults, but provide the lowest interest rate.   *(Central Banking, Monetary...)*

d. Unitary bank is that type of bank that has only one branch.   *(Commercial Banking0*

e. Mutual funds serve as borrowers of funds in the financial market. *(Non-Bank Thrift...)*

3. **2067 Q.No. 2**

Whether the following statements are 'true' or 'false'. Justify your answer.   [10]

a. Commercial banks are highly leveraged financial institutions.

b. Banks are largely responsible for determining prices, national income and other macro-economic variables.

c. Commercial banks in Nepal act only as financial intermediaries.

d. Banks are 'money multiplier' because they create credits.
e. Retail banking is simply lending money only to retailers.

(Commercial banking)
Ans: (a) T (b) F (c) F (d) F (e) F

VERY SHORT ANSWER QUESTIONS

2068 Q.No. 2

Answer the following questions. [5×2=10]

a. How does financial system perform its liquidity function?
(Introduction)

b. Why repo and reverse repo auctions are called 'collateralized window' for short-term liquidity management by Nepal Rastra Bank?
(Money Market Instrument)

c. What is Tier 1 capital as per Basel Accord 1?
(Commercial Banking Industry)

d. What are the unique services that the consumer finance companies render? *(Non-bank Thrift ...)*

e. Why is new technology both challenges and opportunities for financial institutions?
(Future of the Financial System)