

PROFESSIONAL PROGRAMME EXAMINATION

JUNE 2010

FINANCIAL, TREASURY AND FOREX MANAGEMENT

Time allowed : 3 hours

Maximum marks : 100

- NOTE:** 1. Answer FIVE questions including Question No.1 which is **COMPULSORY**. All working notes should be shown distinctly.
2. Tables showing the present value of Re. 1 and the present value of an annuity of Re.1 for 15 years are annexed.

Question 1

Comment on **any four** of the following :

- (i) While deciding upon the capital structure, the firm has to consider the different life cycle stages.
- (ii) Financial services industry encompasses a considerable range and depth of activities.
- (iii) Tools and techniques of treasury manager are very specific.
- (iv) Traditional approach of business finance considers efficient utilisation of resources.
- (v) Playing with float is a risky proposition. (5 marks each)

Answer 1(i)

The firm has to consider the following life cycle stages while deciding upon the capital structure :

- (a) **The Pioneering Stage:** It is the starting stage when there is rapid increase in demand for the product/services of company. At this stage only efficient companies survive. Due to risk perception about the company the cost of borrowing is high. To survive in this stage, capital structure is more oriented towards equity and avail more soft loans.
- (b) **Expansion Stage:** In this stage strong companies having survived the competition struggle successfully expand their market share and volumes. For this requirement of funds is high. Therefore, the company in this stage resorts to financial leverage.
- (c) **Stabilization/Stagnation Stage:** In this stage, management looks out for expansion and diversification into new projects. Takeovers, mergers, acquisition and strategic alliances are main activities. In this stage, capital structure depends on these activities.

Answer 1(ii)

Now-a-days financial services industry has assumed great significance. It encompasses a considerable range and depth of activities. These includes traditional financial intermediaries such as commercial banks, insurance companies, mutual funds and unit trust etc. and modern services such as acceptances, brokerages, credit information, credit rating, deposit, insurance, discounting, re-discounting, factoring, guarantees, funds transfer, hire purchase, leasing, loan syndication, underwriting.

Answer 1(iii)

The tools and techniques of treasury manager are very specific. These are as follows :

- (a) **Analytical and planning tools:** In treasury function planning and budgeting are essential to achieve targets and keep effective control on costs. For achieving this, techniques of performance budgeting and responsibility accounting are used. Each department is made profit centre and is accountable for its targets.
- (b) **Zero Base Budgeting:** Each manager establishes objectives for his function. He has to justify level of activity, cost and benefits for his function. The management assesses this and the least cost alternative is selected.
- (c) **Financial Statement Analysis:** It helps the treasury manager to decide whether to invest in the company. The soundness and intrinsic worth of company, is decided by such analysis. It helps in internal control also.

Answer 1(iv)

The traditional approach of finance was concerned with raising of funds used in an enterprise. The approach encompasses instruments selection, institutions through which funds are raised and legal and accounting practices and their relationship with the enterprise. The traditional approach played very negligible role in financial planning and direction.

Efficient utilization of resources along with financing decisions requires financial planning and proper direction. The top managements in corporate sector are more concerned with planning the sources and uses of funds and measuring performance.

Answer 1(v)

Playing with the float results into maximization of cash availability. The float is the difference between the total amount of cheques drawn and the actual amount shown in the bank account. The float is caused by transit and processing delays. If the float is estimated accurately, then excess amount can be invested elsewhere, and to earn return. However, it is a risky practice and has to be followed quite consciously.

Question 2

- (a) *Priyanka Ltd. has the following capital structure as on 31st March, 2009 :*

	Rs.
Equity shares : 20,000 Shares of Rs.100 each	20,00,000
10% Preference Shares (of Rs.100 each)	8,00,000
12% Debentures (of Rs.1,000 each)	<u>12,00,000</u>
	<u>40,00,000</u>

The company's shares are sold in the market at Rs.110 each and it is expected that a dividend of Rs.10 per share would be declared for the year 2009. The dividend growth rate is likely to remain at 6%.

- (i) *You are required to calculate the weighted average cost of capital, if the company comes in the tax bracket of 30%.*
- (ii) *The company is planning to diversify its production activities and intends to borrow a sum of Rs.20 lakh at the rate of 15% per annum. This financing decision is expected to increase dividend from Rs.10 to Rs.12*

per share, however, the market price of the equity share is likely to decrease from Rs.110 to Rs.105. What will be the company's revised weighted average cost of capital ?

- (iii) Priyanka Ltd. has the following investment opportunities that are typical average risk projects for the company :

Projects	Cost (Rs. in Lakhs)	Rate of Return
	(t=0)	(%)
A	10	17.4
B	20	16.0
C	10	14.2
D	20	13.7
E	10	10.0

Which project(s) should Priyanka Ltd. accept ? Why ? (4+3+3=10 marks)

- (b) Ratan Enterprises requires 1,80,000 units of a certain item annually. The cost per unit and the cost per purchase order are Rs.6 and Rs.600 respectively. The inventory carrying cost is Rs.6 per unit per year.
- (i) What is the economic order quantity?
- (ii) What should the firm do if the supplier offers discount as below :

Order Quantity	Discount (%)
9000–11999	2
12,000 and above	3

(6 marks)

- (c) On 1st October, Deepak is retiring from service and he will get an amount of Rs.16,32,000 as retirement benefits. He is planning to invest this money in the following three scripts, which he considers grossly under-valued stocks in the market:

Stock	No. of Shares	Price (Rs.)	Beta
X	2,000	300	0.42
Y	3,000	416	0.65
Z	4,600	330	1.72

It is September now and he plans to take advantage of this mispricing in the stock market by using futures market. How many October contracts will you be trading if the spot index is 3,990 and October futures are quoted at 4,062?

(4 marks)

Answer 2(a)(i)

Calculation of Weighted average cost of Capital

Source of Capital	Amount (Rs. Lakhs)	Proportion	After tax Cost (1-30%)	WACC
Equity Share Capital	20	50%	15.09	50% $\times$ 15.09=7.55
10% Preference Share Capital	08	20%	10%	20% $\times$ 10=2.00

12% Debentures	12	30%	$12\%(1-0.3) = 8.4$	$30\% \times 8.4 = 2.52$
	40	100%		12.07%

Working Note :

$$K_e = \frac{D_1}{P_0} + g = 10/110 + 0.06 = 0.1509 \text{ or } 15.09\%$$

Answer 2(a)(ii)

With the borrowing of Rs.20 lakhs at 15% the capital structure would be Rs.60 lakhs.

Statement of Revised WACC

Source of Capital	Amount (Rs. lakhs)	Proportion	After tax cost	WACC (1—30%)
Equity Shares	20	20/60	17.43%	$20/60 \times 17.43 = 5.81\%$
10% Preference Shares	08	8/60	10%	$8/60 \times 10 = 1.33$
12% Debentures	12	12/60	$12\%(1-.30) = 8.4$	$12/60 \times 8.4 = 1.68$
15% Loan	20	20/60	$15 (1-.30) = 10.5$	$20/60 \times 10.5 = 3.50$
Total	60	60/60		12.32

Revised WACC = 12.32%

Working Note: $K_e = 12/105 + 0.06 = 0.1743$ or 17.43%

Answer 2(a)(iii)

Prinyaka Ltd's marginal cost of capital is 12.32% as shown in 2(a)(ii). Hence it can accept A, B, C and D projects. It should reject the project E because its rate of return is less than marginal cost of funds needed to finance.

Answer 2(b)

Annual Requirement = 1,80,000 units

Cost per purchase order = Rs. 600

Cost per unit = Rs. 6

Inventory Carrying Cost per unit = Rs. 6

$$(i) \text{ EOQ} = \sqrt{\frac{2AO}{C}}$$

A = Annual Requirement

O = Cost of per purchase order

C = Inventory Carrying cost per unit per annum

$$= \frac{\sqrt{2 \times 1,80,000 \times 600}}{6} = 6000 \text{ units}$$

(ii) Calculation of optimum order size if different rates of discount offered :

Unit require- ment p.a. (A)	Order Quantity (B)	Average Stock (B÷ 2) =(C)	No. of Orders (A÷ B) =(D)	Unit price after 2% & 3% discount (E)	Purchase Price Rs. (A×E) = (F)	Cost of carry- ing @ Rs.6 (C×Rs. 6) (G)	Total Cost of Ordering (D x Rs.600) x (H)	Total Cost Rs. (F + G + H) (I)
1,80,000	6,000	3,000	30	6	10,80,000	18,000	18,000	11,16,000
1,80,000	9,000	4,500	20	5.88	10,58,400	27,000	12,000	10,97,400
1,80,000	12,000	6,000	15	5.82	10,47,600	36,000	9,000	10,92,600

The total cost is lowest for order quantity of 12,000 units with 3% discount and should be selected.

Answer 2(c)

The portfolio beta is equal to :

$$\frac{2,000 \times 300}{16,32,000} \times .042 + \frac{3,000 \times 416}{16,32,000} \times 0.65 + \frac{4,600 \times 330}{16,32,000} \times 1.72$$

$$= 0.1544 + 0.4970 + 1.5998 = 2.25$$

$$\text{Number of contracts (n)} = \frac{\text{Value of Portfolio}}{\text{Value of future contract}} \times \beta$$

$$= \frac{16,32,000 \times 2.25}{4,062 \times 200}$$

$$= \frac{36,72,000}{8,12,400} = 4.5 \text{ contracts}$$

The investor has to buy 4 contracts

Note : Nifty Contract multiplier 200 is taken for calculation.

Question 3

(a) An Indian importer has to settle an import bill for \$1,30,000. The exporter has given the Indian exporter two options :

- Pay immediately without any interest charges.
- Pay after three months with interest @ 5% per annum.

The importer's bank charges 15% per annum on overdrafts. The exchange rates in the market are as follows :

Spot rate (Rs./\$) : 48.35/48.36

3-Month forward rate (Rs./\$): 48.81/48.83

The importer seeks your advice. Give your advice. (8 marks)

- (b) Zebra Ltd. was started a year back with paid-up equity capital of Rs.40 lakh. Other details are as under :

Earnings of the year	:	Rs.4,00,000
Dividend paid	:	Rs.3,20,000
Price-earnings ratio	:	12.5
Number of shares	:	40,000

You are required to find out whether company's dividend payout ratio is optimal using Walter's Model, giving reasons. (6 marks)

- (c) A futures contract is available on a company that pays an annual dividend of Rs.5 and whose stock is currently priced at Rs.200. Each futures contract calls for delivery of 1,000 shares of stock in one year, daily marking to market, an initial margin of 10% and a maintenance margin of 5%. The corporate treasury bill rate is 8%.
- Given the above information, what should the price of one futures contract be?
 - If the company stock price decreases by 7%, what will be the change, if any, in futures price ?
 - As a result of the company stock price decrease, will an investor that has a long position in one futures contract of this company realises a gain or loss? Why ? What will be the amount of this gain or loss ? (6 marks)

Answer 3(a)

Evaluation of two options offered by exporter for settlement of payment

Option I: Pay immediately without any interest charges

(a) Bill value converted to Indian rupees (\$ 1,30,000 x Rs. 48.36) =	Rs. 62,86,800
(b) Interest on the borrowing from bank (o/d) @ 15% p.a. For three months Rs. 62,86,800 x 15/100 x 3/12 =	<u>Rs. 2,35,755</u>
Total :	<u>Rs. 65,22,555</u>

Option II: Pay after 3 months with interest @ 5% p.a.

(a) Bill value	\$ 1,30,000
(b) Interest @ 5% p.a. for 3 months = \$ 1,30,000 x 0.05 x 0.25	<u>\$ 1,625</u> <u>\$ 1,31,625</u>

(c) Forward Rs./\$ rate (\$ 1,31,625 x Rs. 48.83) =	Rs. 64,27,249
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Difference in outflows in Option I and Option II

$$= \text{Rs. } 65,22,555 - \text{Rs. } 64,27,249$$

$$= \text{Rs. } 95,306.$$

Advice: it is advisable to settle bill payable after three months since rupee outflow is less by Rs. 95,306.

Answer 3(b)

Paid-up equity Capital = Rs.40,00,000

Earnings of the year = Rs.4,00,000

Dividend Paid = Rs.3,20,000

P/E Ratio = 12.5

No. of Shares = 40,000

$$\text{EPS or } r = \frac{\text{Rs. 4,00,000}}{40,000} = \text{Rs.10}$$

Dividend per share or (k) = 3,20,000/40,000 = Rs.8

Walter's Model :

$$P = \frac{\text{DPS} + (r/k)(\text{EPS} - \text{DPS})}{k}$$

If DPS = Rs. 8, then

$$P = \frac{8 + (.10/.08)(10 - 8)}{0.08}$$

$$= \frac{8 + (1.25)(2)}{.08}$$

$$= \frac{8 + 2.5}{.08}$$

= Rs. 131.25

To get optimal, the DPS = 0

$$P = \frac{0 + (0.10)(10 - 0)}{(.08)}$$

$$= \frac{1.25 \times 10}{.08}$$

If DPS = 0 then P = 156.26

So, value of share is optimal if Dividend is nil.

Answer 3(c)

(i) Annual dividend (D) = Rs.5

Current Stock Price(S) = Rs.200

Initial Margin = 10%

Maintenance Margin = 5%

Corporate Treasury bill rate (C) = 8%

Price of One Future Contract

$$F = S + (S \times C) - D$$

$$= 200 + (200 \times 0.08) - 5$$

$$= \text{Rs. 211}$$

- (ii) If the company stock prices decrease by 7%, then price of futures contract

$$\begin{aligned} F &= [200 \times (1 - 0.07)] + [200 \times (1 - 0.07) \times 0.08] - 5 \\ &= 186 + 14.88 - 5 \\ &= \text{Rs. } 195.88 \end{aligned}$$

- (iii) An investor with a long position in one future contract agrees to buy 1,000 shares of the company in one year at Rs.211. Therefore, this investor will benefit only if the future prices increase.

In this case, the future prices has decreased and the investor will therefore realize a loss of

$$(\text{Rs. } 195.88 - \text{Rs. } 211) \times 1,000 = (-) \text{Rs. } 15,120.$$

Question 4

*Distinguish between **any four** of the following :*

- (i) 'Deep discount bonds' and 'disaster bonds'.
- (ii) 'Financial aspects of project appraisal' and 'economic aspects of project appraisal'.
- (iii) 'Index futures' and 'index options'.
- (iv) 'Initial margin' and 'maintenance margin'.
- (v) 'Corporate finance' and 'business finance'. (5 marks each)

Answer 4(i)

Deep Discount Bonds

The deep discount bond is considered a safe, solid and liquid instrument. In the past, IDBI, ICICI and SIDBI had issued this instrument. For a deep discount price of Rs.2,700/- in IDBI the investor got a bond with the face value of Rs.1,00,000. The bond appreciates to its face value over the maturity period of 25 years. Alternatively, the investor can withdraw from the investment periodically after 5 years. The capital appreciation is charged to tax at capital gains rate which is lower than normal income tax rate.

Disaster Bonds

These are issued by companies and institutions to share the risk and expand the capital to link investors return with the size of insurer losses. The bigger the losses, the smaller the return and vice-versa. The coupon rate and the principal of the bonds are decided by the occurrence of the casualty of disaster and by the possibility of borrowers defaults.

Answer 4(ii)

The Financial Aspects of Project Appraisal

The financial aspects of the project are analysed under the following heads:

- (I) Amount of resources required to bring the project into operation and the sources from which finance will be obtained.
- (II) Equity-Debt ratio.
- (III) Profitability and cash flow.

(IV) Security.

Economic Aspects of Project Appraisal

An economic analysis of industrial projects is made on the basis of the following techniques of economic appraisal.

There are three measures commonly used for economic appraisal:

- (1) Economic Rate of Return (ERR)
- (2) Domestic Resources Cost (DRC)
- (3) Effective Rate of Protection (ERP)

Answer 4(iii)

Index futures

Index futures are the future contracts for which the underlying is the cash market index. In India, futures on both BSE Sensex and NSE Nifty are traded.

By trading in index futures, the investors are betting on the state of the economy or collectively on the future market values of the shares of leading companies from major industrial groups. In a normal contract for purchase of equity shares, physical quantity of shares is delivered but in a futures contract, there is nothing to be delivered.

Index options

A call or put option is possible on a financial index. Investors trading index options are essentially betting on the overall movement of the stock market as represented by a basket of stocks in the form of index such as BSE Sensex and NSE Nifty.

Answer 4(iv)

Initial Margin

It represents the amount deposited by both buyer and seller. The amount of money which a customer must deposit in his account whenever he establishes a future position. It is set by the exchange and are usually about 10% to 20% of the total value of the contract. It is large enough to cover a one-day loss.

Maintenance Margin

it is the minimum margin required to hold a position. It should be sufficient to support the daily settlement process called "mark-to-market", whereby losses that have already occurred are collected. It provides safeguard against potential losses on outstanding position.

Answer 4(v)

<i>Corporate Finance</i>	<i>Business Finance</i>
It deals with the finance of business of corporate bodies.	It deals with the financial practices of all types of business enterprises.

It is a specialised branch of business finance.	It is broader term. It includes corporate and non-corporate finance.
Sources of funds are generally from public and government.	Sources of funds are private agencies or others.

Question 5

- (a) *The spot exchange rate is Rs.15/€ and the three months forward exchange rate is Rs.15.20/€. The three month interest rate is 8% per annum in India and 5.8% per annum in Germany. Assume that you can borrow as much as Rs.15 lakh or € 10 lakh.*
- Determine whether the interest rate parity is currently holding.*
 - How would you carry out covered interest arbitrage ? Show all steps and determine the arbitrage profit. (4 marks)*
- (b) *Silver Coin Ltd. is a manufacturing company. It has received an export order of 1,80,000 units. The finance manager of the company is estimating working capital requirements for the production to meet export order. Following information is given for the year 2009-10 :*
- Production in 2008-09 was 1,80,000 units and it is estimated that in 2009-10 the level will be maintained.*
 - Each unit will remain in process for one month. Raw material being channelised into the pipelines immediately and the labour and overhead costs accruing evenly during the month.*
 - Final production will be stored in warehouse awaiting despatch for 3 months.*
 - Credit allowed by creditors is 1.5 months from the date of delivery of raw materials.*
 - Credit permitted to debtors is 2.5 months from the date of despatch.*
 - Selling price per unit is Rs.15.*
 - The expected ratios of cost to the selling price are raw material 50%, direct wages 15% and overheads 20%.*
 - Raw materials are expected to remain in store for an average of 1.5 months before issue to production.*
 - There is regular production and sales cycle.*
 - The company maintains Rs.60,000 as cash in hand.*
 - Wages and overheads are paid on the first of each month for the previous month.*

You are required to submit the working capital requirement to the finance manager of Silver Coin Ltd. (16 marks)

Answer 5(a)

- Spot Exchange Rate = Rs.15/€
3 months forward exchange = 15.20/€
3 months interest rate = 8% p.a. (India)
3 months interest rate = 5.8% p.a. (Germany)
For interest rate parity to hold true

$$(1 + r_h) = F/S (1 + r_f)$$

r_h = rate of interest in home currency

r_f = rate of interest in foreign currency

$$\text{LHS} = (1 + 0.02)$$

$$\text{RHS} = (1 + r_f) (F/S) = (1.0145) (1.52/1.50) = 1.0280 \text{ (€ return)}$$

Since LHS $\neq$ RHS, Interest Rate Parity does not hold exactly.

(ii) Step 1 Borrow Rs.15 lakh, repayment will be Rs.15,30,000.

Step 2 buy € 10,00,000 using spot rate

Step 3 invest €10 lakh at the Germany interest rate, maturity value will be € 10,14,500

Step 4 sell €10,14,500 forward for Rs.15,42,040

Arbitrage Profit = Rs.12,040.

Answer 5(b)

June 16,2010

To

Finance Manager

Silver Coin Ltd.

As desired, statement showing Working Capital Requirement of Silver Coin Ltd. is as under :

Statement showing Working Capital requirement

<i>Particulars</i>	<i>Basis of Calculation</i>	<i>Amount (Rs. lakhs)</i>
Raw material in store	13,50,000 x 1.5/12	1,68,750
Work in progress 15000 units of one month		
Raw Materials	15,000 x 7.50 = 1,12,500	
Wages	15,000 x 2.25 x 50% = 16,875	
Overheads	15,000 x 3.00 x 50% = 22,500	1,51,875
Stock of finished goods	15,000 x 3 x 12.75 =	5,73,750
Inventory		8,94,375
Debtors	2.5 x 15,000 x 15 =	5,62,500
Cash in Hand		60,000
Current Asset		(A) <u>15,16,875</u>
Creditors	1.5/12 x 13,50,000 =	1,68,750
Wages and Overheads	1/12 x 9,45,000	78,750
Current Liabilities		(B) <u>2,47,500</u>
Working Capital requirement		
Current Assets– Current Liabilities (A-B)		<u>12,69,375</u>

Working Notes :

(i) Production during 2009-10 is 1,80,000 units. Production and sales are regular so sales is 1,80,000 units i.e., 15,000 units per month

(ii) Statement of Cost and Profit of Silver Coin Ltd.

<i>Particulars</i>	<i>Rs. per unit</i>	<i>Amount</i>
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		<i>in a Year</i> <i>(Rs. Lakhs)</i>
Raw material 50% of Rs.15	7.50	13,50,000
Direct Wages 15% of Rs.15	2.25	4,05,000
Overheads 20% of Rs.15	<u>3.00</u>	<u>5,40,000</u>
Cost of Sales	12.75	22,95,000
Sales	<u>15.00</u>	<u>27,00,000</u>
Profit	2.25	4,05,000

Thanking You

Yours faithfully

XYZ

Note: Wages and overheads for WIP has been charged 50%

Question 6

Surya Manufacturers is planning to start a new manufacturing process. Following are the estimated net cash flows and probabilities of the new manufacturing process :

Year	Net Cash Flows (Rs.)		
	<i>P=0.2</i>	<i>P=0.6</i>	<i>P=0.2</i>
0	(–) 2,00,000	(–) 2,00,000	(–) 2,00,000
1	40,000	60,000	80,000
2	40,000	60,000	80,000
3	40,000	60,000	80,000
4	40,000	60,000	80,000
5	40,000	60,000	80,000
5 (Salvage)	0	40,000	60,000

Surya Manufacturers cost of capital for an average risk project is 10%.

- The project has average risk. Find the project's NPV.*
- Find the best case and worst case NPVs. What is the probability of occurrence of the worst case if the cash flows are perfectly dependent (perfectly positively correlated) over time and if they are independent over time ?*
- Assume that all the cash flows are perfectly positively correlated, that is, there are only three possible cash flow streams over time : (i) the worst case; (ii) the most likely or base case; and (iii) the best case with probabilities 0.2, 0.6 and 0.2 respectively. These cases are represented by each of the columns in the given table. Find the expected NPV, the standard deviation and co-efficient of variation. (20 marks)*

Answer 6(a)

Table showing expected cash flows :

	0.2	0.6	0.2	
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Year	(P x Cash Flow) Rs. (A)	(P x Cash Flow) Rs. (B)	(P x Cash Flow) Rs. (C)	Expected Cash Flow Rs. (A + B + C)
0	0.2 (-2,00,000)	0.6 (-2,00,000)	0.2 (-2,00,000)	= 2,00,000
1	0.2 (40,000)	0.6 (60,000)	0.2 (80,000)	= 60,000
2	0.2 (40,000)	0.6 (60,000)	0.2 (80,000)	= 60,000
3	0.2 (40,000)	0.6 (60,000)	0.2 (80,000)	= 60,000
4	0.2 (40,000)	0.6 (60,000)	0.2 (80,000)	= 60,000
5	0.2 (40,000)	0.6 (60,000)	0.2 (80,000)	= 60,000
5*	0.2 (0)	0.6 (40,000)	0.2 (60,000)	= 36000

NPV of expected Cash Flows at 10%

$$\begin{aligned}
 \text{NPV} &= -2,00,000 + \frac{60,000}{(1.10)^1} + \frac{60,000}{(1.10)^2} + \frac{60,000}{(1.10)^3} + \frac{60,000}{(1.10)^4} + \frac{96,000}{(1.10)^5} \\
 &= -2,00,000 + 60,000 \times .9091 + 60,000 \times 0.8264 + 60,000 \times 0.7513 + 60,000 \times 0.6830 + 96,000 \times .6209 \\
 &= -2,00,000 + 54,546 + 49,584 + 45,078 + 40,980 + 59,606 \\
 &= -2,00,000 + 2,49,794 \\
 &= \text{Rs.}49,794
 \end{aligned}$$

Answer 6(b)

NPV of Worst Case at 10%

$$\begin{aligned}
 &= -\text{Rs.}2,00,000 \quad 40,000 \quad 40,000 \quad 40,000 \quad 40,000 \quad 40,000 + \text{Zero Salvage Value} \\
 \text{NPV} &= -2,00,000 + \frac{40,000}{(1.10)^1} + \frac{40,000}{(1.10)^2} + \frac{40,000}{(1.10)^3} + \frac{40,000}{(1.10)^4} + \frac{40,000}{(1.10)^5} \\
 &= -2,00,000 + 1,51,632 = -\text{Rs.}48,368
 \end{aligned}$$

NPV of base Case at 10%

$$\begin{aligned}
 &= -\text{Rs.}2,00,000 \quad 60,000 \quad 60,000 \quad 60,000 \quad 60,000 \quad 60,000 \\
 &+ \text{Salvage Value of } 40,000 \\
 &= -\text{Rs.}2,00,000 + 2,27,448 + 24,836 = \text{Rs.}52,284
 \end{aligned}$$

NPV of Best Case

$$\begin{aligned}
 &= -\text{Rs.}2,00,000 \quad 80,000 \quad 80,000 \quad 80,000 \quad 80,000 \quad 80,000 + \text{Salvage Value} \\
 &\text{of } 60,000 \\
 &= -\text{Rs.}2,00,000 + 30,32,264 + 37,254 = \text{Rs.}1,40,158
 \end{aligned}$$

If the cash flows are perfectly dependent, then the low cash flows in the first year will mean a low cash flows in every year. Thus the probability of the worst case occurring is the probability of getting Rs.40,000 net cash flow in year 1 or 20%.

If the cash flows are independent, the cash flows in each can be low, high or average and probability of getting all low cash flow will be :

$$0.2(0.2)(0.2)(0.2)(0.2) = 0.00032 \text{ or } 0.032\%$$

Answer 6(c)

The base case NPV is found using the most likely cash flows and is equal to Rs.52,284. This value differs from the expected NPV of Rs.49,800, because the year 5 cash flows are not symmetric. Under these conditions NPV distribution is as follows:

Case	P	NPV (Rs.)
Worst Case	0.2	- 48,368
Base Case	0.6	52,284
Best Case	0.2	1,40,518

$$\begin{aligned}\text{The expected NPV} &= 0.2 (-48,368) + 0.6 (52,284) + 0.2 (1,40,518) \\ &= - 9,673.6 + 31,370.4 + 28,103.6 \\ &= 49,800.4 \text{ or Rs.49,800}\end{aligned}$$

As is generally the case the expected NPV is the same as the NPV of the expected cash flows in part (a). The standard deviation is :

$$\begin{aligned}\sigma^2 \text{ NPV} &= 0.2 (-48,368 - 49,800)^2 + 0.6 (52,284 - 49,800)^2 \\ &\quad + 0.2 (140,518 - 49,800)^2 \\ \sigma^2 \text{ NPV} &= 1927391244.8 + 3702153.6 + 1645951104.8 \\ &= 3577044503 \\ \sigma \text{ NPV} &= \sqrt{3577044503} \\ &= 59808\end{aligned}$$

$$\text{Co-efficient of variation} = 59808 / 49800 = 1.2$$

Question 7

Write notes on **any four** of the following :

- (i) Types of swaps
- (ii) Capital rationing
- (iii) Technical aspects of feasibility report
- (iv) Trade credit as source of finance
- (v) ABC analysis. (5 marks each)

Answer 7(i)**Types of Swaps**

A swap can be defined as the exchange of one stream of future cash flows with another stream of cash flows with different characteristics. An interest swap is a contract to exchange cash flow streams that might be associated with some fixed income obligations—say swapping the cash flows of a fixed rate loan for those of a floating rate loan. A currency swap is exactly the same thing as with an interest rate swap. However, in later the cash flow streams are in the same currency while in currency swap, cash flows are in different currencies.

Answer 7(ii)**Capital Rationing**

Capital Rationing decision is not confronted with those firms where fund is not the constraint, but in majority of the cases, firms have fixed capital budget. So a large number of projects compete for these limited fixed capital budget. So the firm rations these funds in a manner so as to maximize the long run returns. Thus, capital rationing refers to the situations where the firms have more acceptable investments requiring greater amount of finance than is available with the firm, it is concerned with the selection of a group of investment out of many investment proposals ranked in the descending order of the rate of return.

Answer 7(iii)

Technical aspects of feasibility report

Technical examination of a project involves consideration of the following factors:

- (a) Feasibility of the selected technical process and its suitability under Indian conditions
- (b) Scale of operations
- (c) Location
- (d) Plant and Equipment and their specifications
- (e) Plant Layout
- (f) Facilities for the supply of water, power and fuel
- (g) Facilities for disposal of effluents and also of the by-products, if any
- (i) Availability and economies of the means of transport in the region be examined and ensured
- (j) Arrangements for securing the technical know-how and training of personnel and labour who have to operate in the shop-floor be certified and ensured
- (k) Construction Schedule
- (l) Cost Estimates.

Answer 7(iv)

Trade credit as source of finance

Trade credit provides an instant source of financing variable working capital for the period falling between the point, goods are purchased and the point when payment is made. The longer this period, the more advantageous it becomes for the firm to avoid efforts of seeking finance for holding inventories or receivables.

Trade credit received on purchases reduces working capital funds requirements and has to be taken into account for correct assessment of funds.

Answer 7(v)

ABC Analysis

This system is based on the assumption that in view of the scarcity of managerial time and efforts, more attention should be paid to those items which account for a larger chunk of the value of consumption rather than the quantity of consumption. Let us take an example of a firm having three major components of raw material :

<i>Comp onent</i>	<i>Units Consumed</i>	<i>% to total quantity</i>	<i>Value per unit</i>	<i>Total Value (Lacs)</i>	<i>%</i>
X	5000	45.45	1000	50.00	22.93
Y	4000	36.36	1200	48.00	22.00

Z	2000	18.18	6000	120.00	55.05
	11000	100.00		218.00	100.00

Thus the cost of raw material Z which accounts for 55% of the total consumption value should be given priority over item X although the number of units consumed of the letter is much more than former.
