

Institute of Actuaries of India

Subject CT2 – Finance and Financial Reporting

September 2017 Examinations

INDICATIVE SOLUTIONS

Introduction

The indicative solution has been written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable.

Solution 1: A [2]

Solution 2: D [2]

Solution 3: C [2]

Solution 4: A [2]

Solution 5: A [2]

$$12\% \cdot .5 + 18\% \cdot 0.5 = 15\%$$

$$12\% \cdot .75 + 18\% \cdot 0.25 = 13.5\%$$

Solution 6: B [2]

	A	B
EBIT	90	90
Less Interest@18%	-	(27)
Profit	90	63
Value of Company	$90 / .25 = 360$	360 (by equilibrium)
Value of Debt	-	150
Value of Equity	360	$360 - 150 = 210$
Cost of equity	25%	$63 / 210 \cdot 100 = 30\%$

Solution 7: D [2]

Solution 8: B [2]

Solution 9: D [2]

Solution 10: C [2]

Solution 11:

i) Objectives of Monetary Policies:-

- a. Stability of the price level;
- b. Stability of the foreign exchange rate;
- c. Full employment;
- d. Economic growth
- e. Adequate credit supply to producers and traders; and
- f. Maintaining equilibrium in the balance of payments.

[2]

ii) Quantitative or General Measures: Quantitative weapons have a general effect on credit regulation. They are directed towards influencing the total volume of credit in the banking system without special regards for the use to which it is put.

a) **Bank Rate Policy:** It is the traditional weapon of credit control used by a Central Bank. The bank rate is the rate at which the Central Bank discounts the bills of commercial banks. When the central Bank wishes to control credit and inflation in the economy, it raises the bank rate. Increased Bank Rate increases the cost of borrowings of the commercial banks who in turn charge a higher rate of interest from their borrowers. This means the price of credit will increase. This will affect the profits of the business community who will feel discouraged to borrow. As a result, the demand for credit will go down. Decreased demand for credit will slow down investment activities which in turn will affect production and employment. Consequently, income in general will fall, people's purchasing power will decrease and aggregate demand will fall and prices will fall down. This in turn will lead to a cumulative downward movement in the economy.

On the other hand, if the Central Bank wishes to boost production and investment activities in the economy it will decrease the Bank Rate. Decreasing the Bank Rate will have a reverse effect.

b) **Open market operations:** Open market operations imply deliberate direct sales and purchases of securities and bills in the market by the Central Bank on its own initiative to control the volume of credit. When the Central Bank sells securities in the open market, other things being equal, the cash reserves of the commercial banks decrease to the extent that they purchase these securities. In effect, the credit-creating base of commercial banks is reduced and hence credit contracts. On the other hand, open market purchases of securities by the Central Bank lead to an expansion of credit made possible by strengthening the cash reserves of the banks. Thus, on account of open market operations, the quantity of money in circulation changes. This tends to bring about changes in money rates. An increase in the supply of money through open market operations causes a downward movement in the interest rate, while a decrease of money supply raises interest rate. Change in the rate of interest in turn tends to bring about the desired adjustments in the domestic level of prices, cost, production and trade.

c) **Variable reserve requirements:** The Central Bank also uses the method of variable reserves requirements to control credit. There are two types of reserves which the commercial banks are generally required to maintain (i) Cash Reserve Ratio (ii) Statutory Liquidity Ratio (SLR). Cash reserve ratio refers to the portion of total deposits which a commercial bank has to keep with the Central Bank in the form of cash reserves. Statutory liquidity ratio refers to that portion of total deposits which a commercial has to keep with itself in the form of liquidity assets viz-cash, gold or approved government securities. By changing these ratios, the Central Bank controls credit in the economy. If it wants to discourage credit in the economy, it increases these ratios and if it wants to encourage credit in the economy, it decreases these ratios. Raising of the reserve rates will reduce the surplus cash reserve of the banks which can be offered for credit. This will tend to contract credit in the system. Reverse will be effects of reduction in the reserve ratio requirements reflected in the expansion of the bank credit.

d) **Repo Rate and Reverse Rate:** In addition to this, there are tools of Repo and Reverse Repo Rates. Repo Rate is the rate at which our banks borrow rupees from RBI. Whenever the banks have any shortage of funds they can borrow it from RBI. RBI lends money to bankers against approved securities for meeting their day to day requirements or to fill short term gap. A reduction in the Repo

rate will help banks to get money at a cheaper rate. When the repo rate increases borrowing from RBI becomes more expensive.

Reverse Repo rate is the rate at which Reserve Bank of India (RBI) borrows money from bank. An increase in Reverse repo rate can cause the banks to transfer more funds to RBI due to these attractive interest rates. It can cause the money to be drawn out of the banking system.

[6]

iii) Qualitative or Selective Measures: Selective or qualitative instruments of credit control, on the other hand, are directed toward the particular use of credit and not its total volume.

Qualitative or selective measures are generally meant to regulate credit for specific purposes. The Central Bank generally uses the following forms of credit control:

a) Securing loan regulation by fixation of margin requirements: The Central Bank is empowered to fix the margin and thereby fix the maximum amount which the purchaser of securities may borrow against those securities. Raising of margin curbs the borrowing capacity of the security holder. This is a very effective selective control device to control credit in the speculative sphere without, at the same time limiting the availability of credit in other productive fields. This device is also useful to check inflation in certain sensitive spots of the economy without influencing the other sectors.

b) Consumer credit regulation: The regulation of consumer credit consists of laying down rules regarding down payments and maximum maturities of instalment credit for the purchase of specified durable consumer goods. Raising the required down payment limits the shortening of maximum period tend to reduce the demand for such loans and thereby check consumer credit.

c) Issue of directives: The Central Bank also uses directives to various commercial banks. These directives are usually in the form of oral or written statements, appeals, or warnings, particularly to curb individual credit structure and to restrain the aggregate volume of loans.

d) Rationing of credit: Rationing of credit is a selective method adopted by the Central Bank for controlling and regulating the purpose for which credit is granted or allocated by commercial banks.

e) Moral suasion: Moral suasion implies persuasion and request made by the Central Bank to the commercial banks to co-operate with the general monetary policy of the former. The Central Bank may also persuade or request commercial banks not to apply for further accommodation from it or not to finance speculative or non-essential activities. Moral suasion is a psychological means of controlling credit; it is a purely informal and milder form of selective credit control.

f) Direct Action: The Central Bank may take direct action against the erring commercial banks. It may refuse to rediscount their papers and give excess credit, or it may charge a penal rate of interest over and above the bank rate, for the credit demanded beyond a prescribed limit.

[6]

iv) Limitations of Monetary Policies:-

a) Excess reserves with the commercial banks: If the commercial banks have excess reserves with them, then the restrictive monetary policy would become ineffective to check the loan-giving capability of the commercial banks. As a result, credit flow cannot be controlled effectively through monetary policy.

- b) Existence of unorganized segment of the money market:** In less developed countries, a large segment of the money market remains unorganized in nature. In that case, the monetary policy would be ineffective to control the credit flow in this unorganized segment of the money market.
- c) Shallow nature of the securities market:** If the number of financial assets or securities is insufficient, then the capital market becomes shallow in nature. This happens particularly in the financial markets or less developed countries. In that case, it becomes difficult for the Central Bank to restrict the flow of credit through open market operations.
- d) Existence of a parallel economy:** When a large amount of black money is created through tax evasion in an economy, there arises a parallel economy. Though several fiscal measures are undertaken by the government to unearth black money, it has not been very effective to control the parallel economy. In this situation also, both fiscal and monetary measures becomes ineffective to control the inflationary pressure.
- e) Emergence of some cost-push factors:** When inflationary pressure arises because of some cost-push factors such as wage-hike due to trade union pressure, rise in input prices because of natural calamities, rise in the prices of imported inputs in the overseas market, etc. then monetary policies become ineffective to control such cost-push inflation.

[5]

[19 Marks]

Solution 12:**Internal and external sources**

Internal Sources of Finance		External Sources of Finance
i)	Internal sources of funds are those that are generated within the business.	External sources of funds include those sources that lie outside an organization, such as suppliers, lenders, and investors.
ii)	Examples are accelerating collection of receivables, disposing of surplus inventories and ploughing back of profit.	Examples are issue of debentures, borrowing from commercial banks and financial institutions and accepting public deposits.
iii)	The internal sources of funds can fulfill only limited needs of the business.	Large amount of money can be raised through external sources.
iv)	Cost of internal funds is low.	External funds are more costly.

[4 Marks]

Solution 13:

The primary objective of a company is to earn profit; hence the objective of financial management is also profit maximization. This implies that the finance manager has to make his decision in a manner so that the profits of the concern are maximized. Each alternative, therefore, is to be seen as to whether or not it gives maximum profit. The company may pursue profit maximization goal but that may not result into creation of shareholder value. Profit maximization is at best a limited objective. It does not take into account the time pattern of returns and it is a narrow objective.

Whereas, Wealth maximization, on the other hand, means that the company is using its resources in a good manner. If the share value is to stay high the company has to reduce its costs and use the resources properly. Goal of wealth maximization means that the company will promote only those policies that will lead to efficient allocation of resources.

[4 Marks]

Solution 14:**Foreign Currency Convertible Bonds (FCCBS)**

FCCBS is a bond issued by an Indian company and subscribed for by non-residents in foreign currency and convertible into ordinary / equity shares of the issuer company in any manner whether in whole or in part or on the basis of any equity related warrants attached to debt instruments.

➤ **Advantages of FCCBs**

1. The convertible bond gives the investor the flexibility to convert the bond into equity at a price or redeem the bond at the end of a specified period, normally three years if the price of the share has not met his expectations.
2. Companies prefer bonds as it leads to delayed delusion of equity and allows company to avoid any current delusion in earnings per share that a further issuance of equity would cost.
3. FCCBs are currently marketable as investors enjoy option of conversion into equity if resulting to capital appreciation. Further investor is assured of minimum fixed interest earnings.

➤ **Disadvantages of FCCBs**

1. Exchange risk is more in FCCBs as interest on bonds would be payable in foreign currency. Thus companies with low debt equity ratios, large foreign earnings potential only opt for FCCBs.
2. FCCBs means creation of more debt and a forex out go in terms of interest which is in foreign exchange.
3. In the case of convertible bonds, the interest rate is low, say around 3-4% but there is exchange risk on the interest rate as well as re-payments if the bonds are not converted into equity shares. The only major advantage would be that where the company has a high rate of growth in earnings and the conversion takes place subsequently, the price at which shares can be issued can be higher than the current market price.

[5 Marks]

Solution 15:

$$\text{Cost of project} = 40000(1/1.15 + 1/1.15^2 + 1/1.15^3 + 1/1.15^4)$$

$$= 114200$$

$$\text{Payback} = 114200/40000 = 2.855$$

$$\text{PI} = \text{PVIF} / \text{Cost}$$

$$\text{PVIF} = \text{PI} * \text{Cost}$$

$$= 1.064 * 114200$$

$$= 121509$$

$$\text{NPV} = \text{PVIF} - \text{Cost}$$

$$= 121509 - 114200$$

$$= 7309$$

Cost of capital (i):

$$121509 = 40000(1/(1+i)+1/(1+i)^2+1/(1+i)^3+1/(1+i)^4)..... i = 12\%$$

[8 Marks]

Solution 16:

- i) Factors influencing the gearing decisions are:
- Asset structure of the business
 - Cost of raising and servicing the capital
 - Availability of debt and equity finance
 - Financial risk
 - Effect on control of the company
 - Market view
 - Taxation

[3]

ii)

Debt	250000	1000000	1500000	Mark
Equity	2250000	1500000	1000000	1
EBIT	500000	500000	500000	
(-)interest	25000	137500	237500	1
PBT	475000	362500	262500	
(-)Tax	237500	181250	131250	
PAT	237500	181250	131250	1
No. of shares	15000(2250000/150)	10000(1500000/150)	8000(1000000/125)	1
EPS	15.833	18.125	16.406	1

[5]

[8 Marks]

Solution 17:

Financials of GoodHomes Ltd.

INCOME STATEMENT		Comments
Revenue	9,258.00	
(-) Cost of sales	(5,317.48)	
Gross profit	3,940.52	
(-) Selling and distribution	(1,065.00)	
(-) Administrative expenses	(890.00)	
Operating profit	1,985.52	
(-) Finance charge	(298.00)	Debenture interest due

Profit before tax	1,687.52	
(-) Tax expense	(359.17)	
Profit for the year	1,328.35	

Cost of sales calculation

Opening inventory	185.00	
Manufacturing overheads	309.00	
Purchases	2,314.00	
Wages – manufacturing	1,009.00	
Closing inventory	(57.86)	
Factory depreciation	172.20	2% of cost
Equipment depreciation	1,384.00	25% reducing balance
Accrued wages	3.00	
Prepaid insurance	(0.86)	
Total	5,317.48	

[7]

STATEMENT OF CHANGES IN EQUITY

	Equity shares	Retained earnings	Total
Opening balance	5,184.00	2,037.00	7,221.00
Profit for the year (From income statement)		1,328.35	1,328.35
Dividend		278.00	278.00
Closing balance	5,184.00	3,087.35	8,271.35

[3]

BALANCE SHEET

ASSETS

Fixed assets

Factory	6808.80	
Manufacturing equipment	4152.00	
Total fixed assets	10960.80	(A)

Current assets

Inventory	57.86	
Trade receivables	778.00	
Prepayment	0.86	
Cash	972.00	
Total current assets	1808.72	(B)

	12769.52	(A) + (B)
EQUITY AND LIABILITIES		
Share capital	5184.00	
Retained earnings	3087.35	
Total equity	8271.35	(D)
NON-CURRENT LIABILITIES		
Debentures	3726.00	
Total non-current liabilities	3726.00	(E)
CURRENT LIABILITIES		
Trade payables	244.00	
Accruals	168.00	
Tax payable	359.17	
Total current liabilities	771.17	(F)
	12,768.52	(D) + (E) + (F)

Note for markers: There was a typo in the question for the item "Wages – administration" on the assets side, which was actually Rs166,000.

The solution has been provided as per the numbers in the question paper, which lead to a Rs.1000 difference in the final balance sheet. Full marks should be granted despite this difference.

Assets and depreciation

	Factory	Manufacturing equipment	Total
Cost	8,610.00	7,758.00	16,368.00
Depreciation			
Opening balance	1,629.00	2,222.00	3,851.00
Charged for the year	172.20	1,384.00	1,556.20
Closing balance	1,801.20	3,606.00	5,407.20
Net asset value	6,808.80	4,152.00	10,960.80

[10]

[20 Marks]

Solution 18:

Goods and Services Tax (GST) regime was implemented effective 1 July 2017.

GST is an indirect tax hence impact on personal taxation should be nil.

The Goods and Services Tax (GST) will increase the government's revenue in the long term as tax compliance increases and GDP growth is bolstered.

[2 Marks]

Solution 19:

The decline in the equity shows that the market believes that the company is less profitable. That loss appears to have been borne by the shareholders only, whose equity acts as a safeguard to protect the lenders. The shareholders are entitled to all residual profits and so any setback will affect their future cash flows.

Debt is principally like a loan to the company with fixed commitments to pay the interest and capital, hence unless the market perceives that the failure of the project will impact the ability or likelihood of the Company to pay these commitments, the value of debt should not be significantly affected.

The lenders do not receive any benefit from the entity's profit; at best they will receive their agreed payments on time. Thus, the lenders are not necessarily affected in the same way as the shareholders.

[3 Marks]

Solution 20:

i)

- a) $\text{NAV per share} = (\text{Ordinary shareholders' equity} - \text{intangible assets}) / \text{number of issued ordinary shares}$

Usually compared with share price. Key limitation is that assets are usually at book value hence may not reflect true value.

- b) $\text{Profit margin} = \text{Profit before tax and interest} / \text{Revenue}$
Gross and operating profit formula should also be given credit

Not very suitable for businesses in initial years where the payback period is long due to being capital intensive (e.g. insurance).

Not suitable for banks and insurance companies for one year where the revenue and profit may be spread over many years

- c) $\text{Return on capital employed} = \text{Profit before tax} / (\text{Share capital} + \text{reserves})$

Or

$\text{Return on capital employed} = \text{Profit before tax and interest} / (\text{Share capital} + \text{reserves} + \text{long-term debt})$

If profit is volatile, one year's results may be misleading

If capital is not a major factor of production in the industry, this ratio may not provide much value

[5]

ii) Asset values in capital may be outdated

Insurance company accounting ratios indicating profitability

1. Claim ratio = Claims / premium

Ratio of over 100% indicates adverse experience and need to reprice

2. Expense ratio = Expense / premium

Ratio in excess of amount available for expenses should be tightly controlled

3. Value of new business (VNB) = Present value of future profits (PVFP) / Annualised first year premium

(Present value of premiums provided in the denominator is also acceptable)

[2]

[7 Marks]
