



**J.K. SHAH**<sup>®</sup>  
TEST SERIES

Evaluate Learn Succeed

**SUGGESTED ANSWERS**

**CA FINAL**

**Test Code – JK-SFM-21**

**Date – 09-08-2020**

**Head Office: Shraddha, 3<sup>rd</sup> Floor, Near Chinai College, Andheri E,  
Mumbai – 69**

**Tel: (022) 26836666**

## Answers

### Q.1

#### (a)

- i. Intrinsic Value of the Bond = PV of all Future Cash Inflows from the Bond  
 $= 100 \times PVA_{F(11.5\%, 7y)} + 1,050 \times DF_{(11.5\%, 7y)}$   
 $= ₹953.78$  [2 Marks]
- ii. Actual Current Value of the Bond = PV of all Future Cash Inflows from the Bond, discounted @ YTM  
 $= 100 \times PVA_{F(12.3\%, 7y)} + 1,000 \times DF_{(12.3\%, 7y)}$   
 $= ₹ 896.02$  [2 Marks]
- iii. Current Yield =  $\frac{100}{896.02} \times 100 = 11.16\%$  [2 Marks]
- iv. Since the Bond is undervalued ( $896.02 < 953.78$ ), she should accept the Bond today. Alternatively, since YTM (12.3%) > Required Return (11.5%), the Bond should be accepted. [2 Marks]

#### (b)

- i. Calculation of NAV as on 31-03-2018. Let the NAV on 31-03-2018 be x
- Dividends Received on 31-03-2018 = ₹20,000 x 100 x 5% = ₹1,00,000
  - Investment Value = 20,000 u x ₹100 = ₹20,00,000
  - Annualized Return (%) = 112.34%
  - $112.34\% = \frac{20,000x - 20,00,000 + 1,00,000}{20,00,000} \times \frac{12}{6} \times 100$
- $x = \mathbf{151.17}$

On reinvestment of dividends, number of units received =  $\frac{1,00,000}{97.81} = 1,022.39$

Total units as on 31-03-2018 = 20,000 + 1,022.39 = 21,022.39 [3 Marks]

- ii. Calculation of NAV as on 31-03-2019. Let the NAV on 31-03-2019 be x

Units received on reinvestment of dividends on 31-03-2019

$$= 23,012.22 - 21,022.39 = 1,989.83$$

Dividend Received = 21,022.39 x 100 x 15% = ₹3,15,335.85

Therefore, number of units received on reinvestment of dividends on 31-03-2019

$$= \frac{3,15,335.85}{x} = 1,989.83$$

Therefore, x = **158.47**

[3 Marks]

iii. Calculation of NAV as on 31-03-2019. Let the NAV be x

Annualized Return = 79.52%

Therefore,

$$79.52\% = \frac{23,012.22 \times - 20,00,000}{20,00,000} \times \frac{12}{30} \times 100$$

x = **259.69**

**[2 Marks]**

**(c)**

### **Equity Curve outs**

This is like spin off, however, some shares of the new company are sold in the market by making a public offer, so this brings cash. More and more companies are using equity curve-outs to boost shareholders value. A parent firm makes a subsidiary public through an initial public offering (IPO) of shares, amounting to a partial sell-off. A new publicly-listed company is created, but the parent keeps a controlling stake in the newly traded subsidiary.

A carve-out is a strategic avenue a parent firm may take when one of its subsidiaries is growing faster and carrying higher valuations than other businesses owned by the parent. A curve-out generates cash because shares in the subsidiary are sold to the public, but the issue also unlocks the value of the subsidiary unit and enhances the parent's shareholder value.

The new legal entity of a carve-out has a separate board, but in most carve-outs, the parent retains some control over it. In these cases, some portion of the parent firm's board of directors may be shared. Since the parent has a controlling stake, meaning that both firms have common shareholders, the connection between the two is likely to be strong. That said, sometimes companies carve-out a subsidiary not because it is doing well, but because it is a burden. Such an intention won't lead to a successful result, especially if a carved-out subsidiary is too loaded with debt or trouble, even when it was a part of the parent and lacks an established track record for growing revenues and profits.

**[4 Marks]**

**Q.2****(a)**

i. Minimum Required Rate of Return ( $k_e$ ) =  $IRF + (RM - IRF)\beta$

$$= 5\% + (15\% - 5\%) 1.7$$

$$= 22\%$$

**[2 Marks]**

ii. Calculation of Intrinsic Value of share:

$$D_0 = ₹24$$

$V(E)$  = PV of all future Cash Inflows

Year	Cash Inflows	DF@22%	PV
1	25.44	0.8197	20.85
2	26.97	0.6719	18.12
3	29.12	0.5507	16.04
4	31.45	0.4514	14.20
5	33.97	0.3700	12.57
5	284.83	0.3700	105.39
		<b>V(E)</b>	<b>₹187.17</b>

$$*P_5 = \frac{D_6}{(k_e - g)}$$

$$= \frac{(33.97 + 9\%)}{(22\% - 9\%)}$$

$$= ₹284.83$$

**[6 Marks]**

iii. Since the share is currently trading at ₹154 only, it is undervalued and should be purchased.

**[2 Marks]****(b)**

Calculation of Return for the year

**Case i**

If Dividends are Distributed:

$$\text{Return} = \frac{(35.56 - 28.13 + 3.45 + 2.87)}{28.13} \times 100 = 48.88\%$$

**[2 Marks]****Case ii**

If Dividends are Reinvested:

$$\text{Total Investment} = 500 \times 28.13 = ₹14,065$$

Total Dividends =  $500 \times (3.45 + 2.87) = ₹3,160$

NAV for reinvestment = 31.70

Therefore, additional units received on reinvestment =  $\frac{3160}{31.70} = 99.68$

Therefore, total units =  $500 + 99.68 = 599.68$  units

Value of Investment at end of year =  $599.68 \times 35.56 = ₹21,324.62$

Therefore, Return =  $\frac{(21324.62 - 14065)}{14065} \times 100 = 51.61\%$  [4 Marks]

(c)

In ordinary case, the company taken over is the smaller company; in a 'reverse takeover', a smaller company gains control of a larger one. The concept of takeover by reverse bid, or of reverse merger, is thus not the usual case of amalgamation of a sick unit which is non-viable with a healthy or prosperous unit but is a case whereby the entire undertaking of the healthy and prosperous company is to be merged and vested in the sick company which is non-viable. A company becomes a sick industrial company when there is erosion in its net worth. This alternative is also known as taking over by reverse bid.

The three tests should be fulfilled before an arrangement can be termed as a reverse takeover is specified as follows:

- (i) the assets of the transferor company are greater than the transferee company.
- (ii) equity capital to be issued by the transferee company pursuant to the acquisition exceeds its original issued capital, and
- (iii) the change of control in the transferee company through the introduction of a minority holder or group of holders.

This type of merger is also known as 'back door listing'. This kind of merger has been started as an alternative to go for public issue without incurring huge expenses and passing through cumbersome process. Thus, it can be said that reverse merger leads to the following benefits for acquiring company:

- Easy access to capital market
- Increase in visibility of the company in corporate world
- Tax benefits on carry forward losses acquired (public) company.
- Cheaper and easier route to become a public company.

[4 Marks]

**Q.3**

**(a)**

(i) Calculation of  $\beta$

$$\beta = \frac{\text{Cov}_{xm}}{\sigma_m^2}$$

$$\text{Cov}_{xm} = \frac{\sum(x-x)(m-m)}{n}$$

$$\sigma_m^2 = \frac{\sum(m-m)^2}{n}$$

Year	X	M	(x-x) (1)	(m-m) (2)	(1) (2)	(2) 2
1	12%	4%	0	(4)	0	16
2	15%	8%	3	0	0	0
3	(4%)	1%	(16)	(7)	112	49
4	23%	16%	11	8	88	64
5	14%	11%	2	3	6	9
	<b>x = 12%</b>	<b>m = 8%</b>			<b>206</b>	<b>138</b>

$$\text{Cov}_{xm} = 206/5 = 41.2$$

$$\sigma_m^2 = 138/5 = 27.6$$

$$\beta = \frac{41.2}{27.6} = 1.49$$

[4 Marks]

(ii)  $\beta = 1.49$

$$x = \beta m + \alpha$$

Substituting x and m with  $x$  and  $m$

$$12 = 1.49 \times 8 + \alpha$$

$$\alpha = 0.08$$

Characteristic Market Line:

$$x = 1.49m + 0.08$$

[4 Marks]

**(b)**

(i) Effective Interest Rate =  $12\% \times \frac{2}{12} = 2\%$

Value of Futures = Spot + Time Value

=  $500 (1.02) = ₹510$  [2 Marks]

Day	Futures Prices per share (₹) (at day end)	Daily Gain (loss) (\$)	Cum. gain (loss) (\$)	Margin Account Balance (\$)	Margin Call (\$)
1 (Today end)	550	₹8,000	₹8,000	28,000	-
2	570	₹4,000	12,000	32,000	-
3	420	(30,000)	(18,000)	2,000	18,000
4	450	6,000	(12,000)	26,000	-
5	600	30,000	18,000	56,000	-
6	700	20,000	38,000	76,000	-
7	1000	60,000	98,000	1,36,000	-
8	540	(92,000)	6,000	44,000	-
9	500	(8,000)	(2,000)	36,000	-
10	900	80,000	78,000	1,16,000	-

[6 Marks]

**(c)****Pitch Presentation (any four points of below)**

Pitch deck presentation is a short and brief presentation (not more than 20 minutes) to investors explaining about the prospects of the company and why they should invest into the startup business. So, pitch deck presentation is a brief presentation basically using Power Point to provide a quick overview of business plan and convincing the investors to put some money into the business. Pitch presentation can be made either during face to face meetings or online meetings with potential investors, customers, partners, and co-founders. Here, some of the methods have been highlighted below as how to approach a pitch presentation:

**(i) Introduction**

To start with, first step is to give a brief account of yourself i.e. who are you? What are you doing? But care should be taken to make it short and sweet. Also, use this opportunity to get your investors interested in your company. One can also talk up the most interesting facts about one's business, as well as any huge milestones one may have achieved.

**(ii) Team**

The next step is to introduce the audience the people behind the scenes. The reason is that the investors will want to know the people who are going to make the product or service successful. Moreover, the investors are not only putting money towards the idea but they are also investing in the team. Also, an attempt should be made to include the background of the promoter, and how it relates to the new company. Moreover, if possible, it can also be highlighted that the team has worked together in the past and achieved significant results.

**(iii) Problem**

Further, the promoter should be able to explain the problem he is going to solve and solutions emerging from it. Further the investors should be convinced that the newly introduced product or service will solve the problem convincingly.

For instance, when Facebook was launched in 2004, it added some new features which give it a more professional and lively look in comparison to Orkut which was there for some time. It enabled Facebook to become an instant hit among the people. Further, customers have no privacy while using Orkut. However, in Facebook, you can view a person's profile only if he adds you to his list. These simple yet effective advantages that Facebook has over Orkut make it an extremely popular social networking site.

**(iv) Solution**

It is very important to describe in the pitch presentation as to how the company is planning to solve the problem. For instance, when Flipkart first started its business in 2007, it brought the concept of e-commerce in India. But when they started, payment through credit card was rare. So, they introduced the system of payment on the basis of cash on delivery which was later followed by other e-commerce companies in India. The second problem was the entire supply chain system. Delivering goods on time is one of the most important factors that determine the success of an ecommerce company. Flipkart addressed this issue by launching their own supply chain management system to deliver orders in a timely manner. These innovative techniques used by Flipkart enabled them to raise large amount of capital from the investors.

**(v) Marketing/Sales**

This is a very important part where investors will be deeply interested. The market size of the product must be communicated to the investors. This can include profiles of target customers, but one should be prepared to answer questions about how the promoter is planning to attract the customers. If a business is already selling goods, the promoter can also brief the investors about the growth and forecast future revenue.



**(vi) Projections or Milestones**

It is true that it is difficult to make financial projections for a startup concern. If an organization doesn't have a long financial history, an educated guess can be made. Projected financial statements can be prepared which gives an organization a brief idea about where is the business heading? It tells us that whether the business will be making profit or loss?

Financial projections include three basic documents that make up a business's financial statements.

- **Income statement:** This projects how much money the business will generate by projecting income and expenses, such as sales, cost of goods sold, expenses and capital. For your first year in business, you'll want to create a monthly income statement. For the second year, quarterly statements will suffice. For the following years, you'll just need an annual income statement.
- **Cash flow statement:** A projected cash flow statement will depict how much cash will be coming into the business and out of that cash how much cash will be utilized into the business. At the end of each period (e.g. monthly, quarterly, annually), one can tally it all up to show either a profit or loss.
- **Balance sheet:** The balance sheet shows the business's overall finances including assets, liabilities and equity. Typically, one will create an annual balance sheet for one's financial projections.

**(vii) Competition**

Every business organization has competition even if the product or service offered is new and unique. It is necessary to highlight in the pitch presentation as to how the products or services are different from their competitors. If any of the competitors have been acquired, their complete details like name of the organization, acquisition prices etc. should be also be highlighted.

**(viii) Business Model**

The term business model is a wide term denoting core aspects of a business including purpose, business process, target customers, offerings, strategies, infrastructure, organizational structures, sourcing, trading practices, and operational processes and policies including culture.

Further, as per Investopedia, a business model is the way in which a company generates revenue and makes a profit from company operations. Analysts use the term gross profit as a way to compare the efficiency and effectiveness of a firm's business model. Gross profit is calculated by subtracting the cost of goods sold

from revenues. A business model can be illustrated with the help of an example. There are two companies – company A and company B. Both the companies are engaged in the business of renting movies. Prior to the advent of internet both the companies rent movies physically. Both the companies made ₹ 5 crore as revenues. Cost of goods sold was ₹ 400000. So, the companies made ₹ 100000 as gross profit. After the introduction of internet, company A started to offer movies online instead of renting or selling it physically. This change affected the business model of company A positively. Revenue is still ₹ 500000. But the significant part is that cost of goods sold is now ₹ 200000 only. This is because online sales lead to significant reduction of storage and distribution costs. So, the gross profit increases from 20% to 60%.

Therefore, Company A isn't making more in sales, but it figured out a way to revolutionize its business model, which greatly reduces costs. Managers at company A have an additional 40% more in margin to play with than managers at company A. Managers at company A have little room for error and they have to tread carefully.

Hence, every investor wants to get his money back, so it's important to tell them in a pitch presentation as to how they should plan on generating revenue. It is better to show the investors a list of the various revenue streams for a business model and the timeline for each of them. Further, how to price the product and what does the competitor charge for the same or similar product shall also be highlighted. It is also beneficial to discuss the lifetime value of the customer and what should be the strategy to keep him glued to their product.

**(ix) Financing**

If a startup business firm has raised money, it is preferable to talk about how much money has already been raised, who invested money into the business and what they did about it. If no money has been raised till date, an explanation can be made regarding how much work has been accomplished with the help of minimum funding that the company is managed to raise.

It is true that investors like to see entrepreneurs who have invested their own money. If a promoter is pitching to raise capital he should list how much he is looking to raise and how he intend to use the funds.

**[4 Marks]**

**Q.4****(a)****i.** Intrinsic Value: Spot Price + Cost of CarryStorage Cost per pot (of 10 kg) per 6 months =  $200 \times 2 = ₹400$ Storage Cost per of 100 kg per 6 months =  $400 \times 10 = ₹4,000$ 

Intrinsic Value: Spot Price + Cost of Carry

=  $(10,000 \times 10)(1.1) + [4,000(1.05) + 4,000]$ =  $1,10,000 + 4,200 + 4,000$ = ₹1,18,200 [**2 Marks**]**ii.** Since the Futures are trading at ₹1,15,000, they are overvalued. [**1 Marks**]**iii.** Since Actual Value of Futures  $\neq$  Intrinsic Value, there is an arbitrage opportunity. Since futures are overvalued, the strategy for arbitrage will be Buy Spot and Sell Futures

Dealing in 2 Contracts (200 kg i.e. 20 pots)

**TODAY****Step 1:**

Borrow today to purchase 200kg i.e. 20 pots today

Amount to be borrowed =  $10,000 \times 20 = ₹2,00,000$  @ 10% p.a. for 12 months.**Step 2:**

Purchase 200 kg i.e. 20 pots in Spot Today.

**Step 3:**

Sell 2 contract of Futures today @ ₹1,20,000 per contract.

**AFTER 6 MONTHS****Step 4:**

Borrow to Pay Storage Cost

Amount to be borrowed =  $₹4,000 \times 2 = ₹8,000$  @ 10% p.a. for 6 months**Step 5:**

Pay Storage Cost ₹8,000 for 20 pots.

**ON DUE DATE (END OF 12 MONTHS)****Step 6:**Sell 20 Pots and receive original Futures Price i.e. ₹1,20,000 per contract (i.e. per 100 kg i.e. per 10 pots). Total Amount Received =  $₹1,20,000 \times 2 = ₹2,40,000$ .

**Step 7:**

Repay Borrowing taken for buying pots at spot:

$$2,00,000 (1.1) = ₹2,20,000$$

**Step 8:**

Repay Borrowing taken for paying Storage Cost (at end of 6<sup>th</sup> month):

$$₹8,000(1.05) = ₹8,400$$

**Step 9:**

Pay Storage Cost at end of 12<sup>th</sup> month:

$$₹8,000$$

$$\text{Net Arbitrage Gain} = ₹2,40,000 - ₹2,20,000 - ₹8,400 - ₹8,000 = ₹3,600$$

[5 Marks]

**(b)**

i. Percentage Depreciation in USD =  $\frac{(75-80)}{80} \times \frac{12}{6} \times 100 = 12.5\%$  p.a. [1 Marks]

ii. Calculation of Gain/Loss (in INR) after 6 months to Sourav:

**Step 1:**

Calculation of ₹ Inflow after 6 months:

$$\text{Sale Value: } 500 \times 5,00,000 = 25,00,00,000 \text{ ZAR}$$

Money Received today:

$$25,00,00,000 \times 25\% = 6,25,00,000 \text{ ZAR}$$

Today's Spot Rates:

$$1 \text{ USD} = \text{INR } 80$$

$$1 \text{ USD} = \text{ZAR } 956$$

We are searching for 1ZAR = INR ?

$$\frac{\text{INR}}{\text{ZAR}} = \frac{\text{INR}}{\text{USD}} \times \frac{\text{USD}}{\text{ZAR}}$$

$$= 80 \times \frac{1}{956}$$

$$= 0.0837$$

$$1\text{ZAR} = \text{INR } 0.0837$$

Therefore, on sale of 6,25,00,000 ZAR, we will receive:

$$6,25,00,000 \times 0.0837 = \text{INR } 52,31,250 \text{ today.}$$

This will be invested @ 10% p.a. for 6 months

Maturity value at end of 6 months :

$$52,31,250 (1.05) = \text{INR } 54,92,813$$

Money Received after 6 months

$$25,00,00,000 \times 75\% = 18,75,00,000 \text{ ZAR}$$

6m FORWARD RATES:

$$1 \text{ USD} = \text{INR } 75$$

$$1 \text{ USD} = \text{ZAR } 978$$

We are searching for 1ZAR = INR ?

$$\frac{\text{INR}}{\text{ZAR}} = \frac{\text{INR}}{\text{USD}} \times \frac{\text{USD}}{\text{ZAR}}$$

$$= 75 \times \frac{1}{978}$$

$$= 0.0767$$

$$1 \text{ ZAR} = \text{INR } 0.0767$$

Therefore, on sale of 18,75,00,000 ZAR, we will receive:

$$18,75,00,000 \times 0.0767 = \text{INR } 1,43,81,250 \text{ after 6 months.}$$

Therefore, total INR inflow after 6 months = 54,92,813 + 1,43,81,250

$$= \text{INR } 1,98,74,063$$

**[3 Marks]**

### Step 2:

Calculation of INR Outflow after 6 months:

Purchase Price: 200 AUD x 500 = AUD 1,00,000, payable today.

Spot Price: 1 AUD = INR 30

Therefore, for purchase of AUD 1,00,000, we have to pay:

$$1,00,000 \times 30 = \text{INR } 30,00,000.$$

Including Borrowing Interest, INR Outflow after 6 months:

$$30,00,000 (1.05) = \text{INR } 31,50,000 \text{ [3 Marks]}$$

Therefore, Gain to Sourav after 6 months = 1,98,74,063 – 31,50,000 = INR 1,67,24,063

**[1 Marks]**

(c)

Long Position in Cash Market/ Value of the Asset to be Hedged V(A):

$$10,000 \times 1107.09 = ₹1,10,70,900$$

$$\text{Value of one Futures Contract: } 2904.16 \times 50 = ₹1,45,208$$

No. of Index Futures to SHORT to hedge:

$$\beta \times \frac{V_A}{V_F}$$

$$= 1.7 \times \frac{1,10,70,900}{1,45,208}$$

$$= 129.61 \text{ contracts i.e } 130 \text{ contracts.}$$

Justification:

**Case I:**

When Index Futures rise by 1%

$$\text{Revised Value of Index Futures} = 2904.16 + 1\% = 2933.2$$

$$\text{Percentage Increase in Value of Asset: } 1\% \times 1.7 = 1.7\%$$

On Due Date:

$$\text{Final Payoff} = S1 \text{ (Sale in Spot on Due Date)} + F0 \text{ (Original short position in Futures)}$$

$$- F1 \text{ (Long Position to Cancel)}$$

$$= [1,10,70,900 + 1.7\%] + [130c \times 1,45,208] - [130c \times 50 \times 2933.2]$$

$$= ₹1,10,70,345 \text{ [Same as Spot today; difference is due to rounding off]} \quad [2 \text{ Marks}]$$

**Case II:**

When Index Futures drop by 2%

$$\text{Revised Value of Index Futures} = 2904.16 - 2\% = 2846.08$$

$$\text{Percentage Decrease in Value of Asset: } 2\% \times 1.7 = 3.4\%$$

On Due Date:

$$\text{Final Payoff} = S1 \text{ (Sale in Spot on Due Date)} + F0 \text{ (Original short position in Futures)}$$

$$- F1 \text{ (Long Position to Cancel)}$$

$$= [1,10,70,900 - 3.4\%] + [130c \times 1,45,208] - [130c \times 50 \times 2846.08]$$

$$= ₹1,10,72,009 \text{ [Same as Spot today; difference is due to rounding off]} \quad [2 \text{ Marks}]$$

**Q.5****(a)**

Applying the Black Scholes Formula,

Value of the Call option now:

The Formula  $C = SN(d_1) - Ke^{(-rt)} N(d_2)$ 

$$d_1 = \frac{\ln(S/K) + (r + \sigma^2 / 2)t}{\sigma\sqrt{t}}$$

$$d_2 = d_1 - \sigma\sqrt{t}$$

Where,

C = Theoretical call premium

S = Current stock price

t = time until option expiration

K = option striking price

r = risk-free interest rate

N = Cumulative standard normal distribution

e = exponential term

 $\sigma$  = Standard deviation of continuously compounded annual return.

ln = natural logarithim

$$d_1 = \frac{\ln(1.0667) + (12\% + 0.08)0.5}{0.40\sqrt{0.5}}$$

$$= \frac{0.0646 + (0.2)0.5}{0.40 \times 0.7071}$$

$$= \frac{0.1646}{0.2828}$$

$$= 0.5820$$

**[2 Marks]**

$$d_2 = 0.5820 - 0.2828 = 0.2992$$

**[1 Marks]**

$$N(d_1) = N(0.5820)$$

$$N(d_2) = N(0.2992)$$

$$\text{Price} = SN(d_1) - Ke^{(-rt)} N(d_2)$$

$$= 80 \times N(d_1) - (75/1.062) \times N(d_2)$$

Value of option

$$= 80 N(d_1) - \frac{75}{1.062} \times N(d_2)$$

$$N(d_1) = N(0.5820) = 0.7197$$

$$N(d_2) = N(0.2992) = 0.6176$$

$$\text{Price} = 80 \times 0.7197 - \frac{75}{1.062} \times 0.6176$$

$$= 57.57 - 70.62 \times 0.6176$$

$$= 57.57 - 43.61$$

$$= ₹13.96$$

[5 Marks]

(b)

Calculation of Expected Spot Rates using IRPT

Spot Rate: 1SGD = ₹24

India Interest Rate (rh) = 10%

Singapore Interest Rate (rf) = 6%

**1yr FR:**

$$\frac{1.1}{1.06} = \frac{F}{24}$$

$$F = ₹24.9057$$

**2yr FR:**

$$\frac{(1.1)^2}{(1.06)^2} = \frac{F}{24}$$

$$F = ₹ 25.8455$$

**3yr FR:**

$$\frac{(1.1)^3}{(1.06)^3} = \frac{F}{24}$$

$$F = ₹ 26.8208$$

**4yr FR:**

$$\frac{(1.1)^4}{(1.06)^4} = \frac{F}{24}$$

$$F = ₹27.8329$$

**5yr FR:**

$$\frac{(1.1)^5}{(1.06)^5} = \frac{F}{24}$$

$$F = ₹28.8832$$

[3 Marks]



PV of CO = 3,00,000 SGD x 24 = ₹72,00,000

PV of CI

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Cash Revenues	100000	150000	230000	300000	270000
(-) Cash Expenses	(40000)	(60000)	(75000)	(113000)	(121000)
NPBDT	60000	90000	155000	187000	149000
(-) Depreciation	(36000)	(36000)	(36000)	(36000)	(36000)
NPBT	24000	54000	119000	151000	113000
(-) Tax@20%	(4800)	(10800)	(23800)	(30200)	(22600)
NPAT	19200	43200	95200	120800	90400
(+) Depreciation	36000	36000	36000	36000	36000
CFAT	55200	79200	131200	156800	126400
(+) Salvage					120000
Cash Flows	55200	79200	131200	156800	246400
Spot Rates (₹/SGD)	24.9057	25.8455	26.8208	27.8329	28.8832
CF (in ₹)	1374795	2046964	3518889	4364199	7116820
DF@12%	0.8929	0.7972	0.7118	0.6355	0.5674
PV	1227554	1631850	2504745	2773448	4038084

Total PV of CI = ₹1,21,75,671

Therefore NPV = ₹1,21,75,671 - ₹72,00,000

= ₹49,75,671

[5 Marks]

(c)

### Rationale for mergers and acquisitions

The most common reasons for Mergers and Acquisition (M & A) are:

- **Synergistic operating economics:** Synergy May be defined as follows:

$$V(AB) > V(A) + V(B)$$

In other words the combined value of two firms or companies shall be more than their individual value Synergy is the increase in performance of the combined firm over what the two firms are already expected or required to accomplish as independent firms (Mark L Sirower of Boston Consulting Group, in his book

“The Synergy Trap”). This may be result of complimentary services economics of scale or both.

A good example of complimentary activities can a company may have a good networking of branches and other company may have efficient production system. Thus the merged companies will be more efficient than individual companies.

On similar lines, economics of large scale is also one of the reasons for synergy benefits. The main reason is that, the large scale production results in lower average cost of production e.g. reduction in overhead costs on account of sharing of central services such as accounting and finances, office executives, top level management, legal, sales promotion and advertisement etc.

These economics can be “real” arising out of reduction in factor input per unit of output, whereas pecuniary economics are realized from paying lower prices for factors inputs for bulk transactions.

[4 Marks]

## Q.6

(a)

1. Since we wish to hedge our future borrowing, we should SELL Interest Rate Futures.

Lot Size = 5,00,000

Therefore, number of Futures contracts to Sell =  $\frac{\text{₹ } 40,00,000}{\text{₹ } 5,00,000} = 8 \text{ contracts @}$

92.5 [2 Marks]

2. Calculation of effective interest cost if Interest rate goes to 9.5% and Futures trade at 90:

Interest to be paid in Spot:  $\text{₹}40,00,000 \times 9.5\% \times \frac{3}{12} = \text{₹}95,000$

Gain on Closing out Futures Position:

$8 \text{ contracts} \times 5,00,000 \times (92.5 - 90)\% \times \frac{3}{12} = \text{₹}25,000$

Net Interest = ₹70,000.

Effective Interest Rate (p.a.):

$\frac{70,000}{40,00,000} \times 100 \times \frac{12}{3} = 7\%$

[3 Marks]

3. Calculation of effective interest cost if Interest rate goes to 5.5% and Futures trade at 95.25:

$$\text{Interest to be paid in Spot: } ₹40,00,000 \times 5.5\% \times \frac{3}{12} = ₹55,000$$

Loss on Closing out Futures Position:

$$8 \text{ contracts} \times 5,00,000 \times (92.5 - 95.25)\% \times \frac{3}{12} = ₹27,500$$

Net Interest = ₹82,500.

Effective Interest Rate (p.a.):

$$\frac{82,500}{40,00,000} \times 100 \times \frac{12}{3} = 8.25\%$$

[3 Marks]

(b)

- i. Calculation of Portfolio  $\beta$ :

Security	No. of shares	Price/ Share	Investment	Weights	Beta	Wts x $\beta$
Kunal Ltd.	10,000	₹200	₹20,00,000	0.1433	1.2	0.172
Charmi Ltd.	20,000	₹345	₹69,00,000	0.4944	2.3	1.1371
Dilip Ltd.	5,000	₹567	₹28,35,000	0.2032	0.8	0.1626
Geeta Ltd.	15,000	₹120	₹18,00,000	0.1290	1.7	0.2193
Neha Ltd.	7,500	₹56	₹4,20,000	0.03	2.9	0.087
			<b>₹1,39,55,000</b>	<b>1</b>		<b>1.778 times</b>

[2 Marks]

- ii. Required  $\beta = 0.7$  times

For the same, let the weight of the risk free investment in the new portfolio be  $W_x$ . Therefore the weight of the current share portfolio will be taken as  $1 - W_x$ .  $\beta$  of risk free investment is 0.

$$0.7 = W_x \times 0 + (1 - W_x)1.778$$

$$0.7 = 0 + 1.778 - 1.778W_x$$

$$1.778 W_x = 1.078$$

$$W_x = \frac{1.078}{1.778}$$

$W_x = 0.606$  (Risk Free Investment)

$(1 - W_x) = 1 - 0.606 = 0.394$  (Existing Portfolio of Shares)

Therefore, additional Risk Free Investment to be brought in will be:

$$1,39,55,000 \times 0.606 / 0.394 = ₹2,14,63,782 \text{ [3 Marks]}$$

**iii.** Existing  $\beta = 1.778$  times

Required  $\beta = 0.7$

Number of Futures Contracts to SELL to alter the  $\beta$  to 0.7:

$(1.778 - 0.7) \times 1,39,55,000 / (8250 \times 100) = 18.23$  contracts , rounded off to 18 contracts.

**[3 Marks]**

J.K.SHAH CLASSES

(c)

Every startup needs access to capital, whether for funding product development, acquiring machinery and inventory, or paying salaries to its employee. Most entrepreneurs think first of bank loans as the primary source of money, only to find out that banks are really the least likely benefactors for startups. So, innovative measures include maximizing non-bank financing.

Here are some of the sources for funding a startup:

- (i) **Personal financing:** It may not seem to be innovative but you may be surprised to note that most budding entrepreneurs never thought of saving any money to start a business. This is important because most of the investors will not put money into a deal if they see that you have not contributed any money from your personal sources.
- (ii) **Personal credit lines.** One qualifies for personal credit line based on one's personal credit efforts. Credit cards are a good example of this. However, banks are very cautious while granting personal credit lines. They provide this facility only when the business has enough cash flow to repay the line of credit.
- (iii) **Family and friends.** These are the people who generally believe in you, without even thinking that your idea works or not. However, the loan obligations to friends and relatives should always be in writing as a promissory note or otherwise.
- (iv) **Peer-to-peer lending.** In this process group of people come together and lend money to each other. Peer to peer to lending has been there for many years. Many small and ethnic business groups having similar faith or interest generally support each other in their start up endeavors.
- (v) **Crowdfunding.** Crowdfunding is the use of small amounts of capital from a large number of individuals to finance a new business initiative. Crowdfunding makes use of the easy accessibility of vast networks of people through social media and crowdfunding websites to bring investors and entrepreneurs together.
- (vi) **Microloans.** Microloans are small loans that are given by individuals at a lower interest to a new business ventures. These loans can be issued by a single individual or aggregated across a number of individuals who each contribute a portion of the total amount.
- (vii) **Vendor financing.** Vendor financing is the form of financing in which a company lends money to one of its customers so that he can buy products from the company itself. Vendor financing also takes place when many manufacturers and distributors are convinced to defer payment until the goods are sold. This means extending the payment terms to a longer period for e.g. 30 days payment

period can be extended to 45 days or 60 days. However, this depends on one's credit worthiness and payment of more money.

**(viii) Purchase order financing.** The most common scaling problem faced by startups is the inability to find a large new order. The reason is that they don't have the necessary cash to produce and deliver the product. Purchase order financing companies often advance the required funds directly to the supplier. This allows the transaction to complete and profit to flow up to the new business.

**(ix) Factoring accounts receivables.** In this method, a facility is given to the seller who has sold the good on credit to fund his receivables till the amount is fully received. So, when the goods are sold on credit, and the credit period (i.e. the date upto which payment shall be made) is for example 6 months, factor will pay most of the sold amount up front and rest of the amount later. Therefore, in this way, a startup can meet his day to day expenses. **[4 Marks]**