

MOCK TEST PAPER 2
FINAL (NEW) COURSE: GROUP – I
PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT (NEW COURSE)
SUGGESTED ANSWERS/HINTS

1. (a) Working Notes:

(i) Estimated Exchange Rates (Using PPP Theory)

Year	0	1	2	3	4	5	6
Exchange rate	57	57.54	57.82	57.82	57.54	56.99	56.18

(ii) Share in sales

Year	1	2	3	4	5
Annual Units in crores	24	24	24	24	24
Price per bottle (₹)	7.50	8.50	9.50	10.50	11.50
Price fluctuating Inflation Rate	6.00%	5.50%	5.00%	4.50%	4.00%
Inflated Price (₹)	7.95	8.97	9.98	10.97	11.96
Inflated Sales Revenue (₹ Crore)	190.80	215.28	239.52	263.28	287.04
Sales share @55%	104.94	118.40	131.74	144.80	157.87

(iii) Royalty Payment

Year	1	2	3	4	5
Annual Units in crores	24	24	24	24	24
Royalty in \$	0.01	0.01	0.01	0.01	0.01
Total Royalty (\$ Crore)	0.24	0.24	0.24	0.24	0.24
Exchange Rate	57.54	57.82	57.82	57.54	56.99
Total Royalty (₹ Crore)	13.81	13.88	13.88	13.81	13.68

(iv) Tax Liability

(₹ Crore)

Year	1	2	3	4	5
Sales Share	104.94	118.40	131.74	144.80	157.87
Total Royalty	13.81	13.88	13.88	13.81	13.68
Total Income	118.75	132.28	145.61	158.61	171.55
Less: Expenses					
Production Cost (Sales share x 40%)	41.98	47.36	52.69	57.92	63.15
Depreciation (195 x 20%)	39.00	39.00	39.00	39.00	39.00
PBT	37.77	45.92	53.92	61.69	69.40
Tax on Profit @30%	11.33	13.78	16.18	18.51	20.82
Net Profit	26.44	32.14	37.74	43.18	48.58

(v) Free Cash Flow

(₹ Crore)

Year	0	1	2	3	4	5	6
Sales Share	0.00	104.94	118.40	131.74	144.80	157.87	0.00
Total Royalty	0.00	13.81	13.88	13.88	13.81	13.68	0.00
Production Cost	0.00	-41.98	-47.36	-52.69	-57.92	-63.15	0.00
Initial Outlay	-200.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	-50.00	-5.00	-5.00	-5.00	-5.00	70.00	0.00
Scrap Value	0.00	0.00	0.00	0.00	0.00	5.00	0.00
Tax on Profit	0.00	0.00	-11.33	-13.78	-16.18	-18.51	-20.82
Free Cash Flow	-250.00	71.77	68.59	74.15	79.51	164.89	-20.82

(vi) Remittance of Cash Flows

(₹ Crore)

Year	0	1	2	3	4	5	6
Free Cash Flow	-250.00	71.77	68.59	74.15	79.51	164.89	-20.82
50% of Current Year Cash Flow	0.00	35.89	34.29	37.07	39.76	82.45	0.00
Previous year remaining cash flow	0.00	0.00	35.88	34.30	37.08	39.75	82.44
Total Remittance	-250.00	35.88	70.17	71.37	76.84	122.20	61.62

NPV of Project under Appraisal

Year	0	1	2	3	4	5	6	7
Total Remittance (₹ Crore)	-250.00	35.88	70.17	71.37	76.84	122.20	61.62	-
Exchange Rate	57.00	57.54	57.82	57.82	57.54	56.99	56.18	-
Remittance (\$ mn)	-43.86	6.24	12.14	12.34	13.35	21.44	10.97	-
US Tax @35% (\$ mn)	0.00	0.00	2.18	4.25	4.32	4.67	7.50	3.84
Indian Tax (\$ mn)	0.00	0.00	1.96	2.38	2.82	3.25	3.71	-
Net Tax (\$ mn)	0.00	0.00	0.22	1.87	1.51	1.42	3.79	3.84
Net Cash Flow (\$ mn)	-43.86	6.24	11.92	10.47	11.84	20.02	7.18	-3.84
PVF @ 15%	1.000	0.870	0.756	0.658	0.572	0.497	0.432	0.376
Present Value (\$ mn)	-43.86	5.43	9.01	6.89	6.77	9.95	3.10	-1.44
Net Present Value (\$ mn)								= -4.15

Decision: Since NPV of the project is negative, Perfect inc. should not invest in the project.

Total Marks = 10

- (b) (i) As borrower does not want to pay more than 8.5% p.a., on this loan where the rate of interest is likely to rise beyond this, hence, he has hedge the risk by entering into an agreement to buy interest rate caps with the following parameters:

- National Principal: ₹ 4,00,00,000/-
- Strike rate: 8.5% p.a.

- Reference rate: the rate of interest applicable to this loan
- Calculation and settlement date: 31st March every year
- Duration of the caps: till 31st March 2022
- Premium for caps: negotiable between both the parties

To purchase the caps this borrower is required to pay the premium upfront at the time of buying caps. The payment of such premium will entitle him with right to receive the compensation from the seller of the caps as soon as the rate of interest on this loan rises above 8.5%.

- (ii) The premium to be paid on 1st October 2018 is ₹ 3,00,000/- (₹ 4,00,00,000 x 0.75/100). The payment of this premium will entitle the buyer of the caps to receive the compensation from the seller of the caps whereas the buyer will not have obligation. The compensation received by the buyer of caps will be as follows:

Date	Actual Rate of Interest	Strike Rate	Compensation in %	Compensation in ₹
On 31 st March, 2019	10.20%	8.50%	1.70%	₹ 6,80,000/- (4,00,00,000 x 1.70/100)
On 31 st March, 2020	11.50%	8.50%	3.00%	₹ 12,00,000/- (4,00,00,000 x 3.00/100)
On 31 st March, 2021	9.25%	8.50%	0.75%	₹ 3,00,000 (4,00,00,000 x 0.75/100)
On 31 st March, 2022	8.25%	8.50%	Nil*	Nil*

* The buyer of the caps will not receive the compensation as the actual rate of interest is 8.25% whereas strike rate of caps is 8.5%. Hence, his interest liability shall not exceed 8.50%.

Thus, by paying the premium upfront buyer of the caps gets the compensation on the respective interest due dates without any obligations. **Total Marks = 6**

- (c) Financial planning is a systematic approach whereby the financial planner helps the customer to maximize his existing financial resources by utilizing financial tools to achieve his financial goals. Financial Resources, Financial Tools and Financial Goals are not the outcomes of Financial Planning rather these are components of Financial Planning.

Outcomes of the financial planning are as follows:

- ❖ Financial objectives: Financial objectives are to be decided at the very outset so that rest of the decisions can be taken accordingly. The objectives need to be consistent with the corporate mission and corporate objectives.
- ❖ Financial decision making: It helps in analyzing the financial problems that are being faced by the corporate and accordingly deciding the course of action to be taken by it.
- ❖ Financial measures: It includes ratio analysis, analysis of cash flow statement etc. to evaluate the performance of the Company. The selection of these measures again depends upon the corporate objectives. **Total Marks = 4**

2. (a) Projected Balance Sheet

	Year 1	Year 2	Year 3	Year 4
Fixed Assets (40% of Sales)	19,200	23,040	27,648	27,648
Current Assets (20% of Sales)	9,600	11,520	13,824	13,824
Total Assets	28,800	34,560	41,472	41,472
Equity	14,400	17,280	20,736	41,472

Projected Cash Flows:-

	Year 1	Year 2	Year 3	Year 4
Sales	48,000.00	57,600.00	69,120.00	69,120
PBT (10% of sale)	4800.00	5760.00	6,912.00	6,912
PAT (70%)	3360.00	4032.00	4,838.40	4,838.40
Depreciation	1600.00	1920.00	2304.00	2,764.00
Addition to Fixed Assets	4800.00	5760.00	6912.00	2,764.00
Increase in Current Assets	1600.00	1920.00	2304.00	--
Operating cash flow (FCFF)	-1440.00	-1728.00	-2073.60	4,838.40

Projected Cash Flows:-

Present value of Projected Cash Flows:-

Cash Flows	PVF at 15%	PV
-1440.00	0.870	- 1,252.80
-1728.00	0.756	- 1,306.37
-2073.60	0.658	<u>- 1,364.43</u>
		- 3,923.60

Residual Value = $4,838.40/0.15 = 32,256$ Present value of Residual value = $32,256/(1.15)^3$
= $32,256/1.521 = 21,207.10$ Total shareholders' value = $21,207.10 - 3,923.60 = 17,283.50$ Pre strategy value = $2,800 / 0.15 = 18,666.67$ ∴ Value of strategy = $17,283.50 - 18,666.67 = - 1,383.17$ **Evaluation:** The strategy is not financially viable. However, it may be viable considering other non-financial factors. **Total Marks = 10**

- (b) Instead of selling the stock of Reliance Ltd., Ram must cover his Risk by buying or long position in Put Option with appropriate strike price. Since Ram's risk appetite is 5%, the most suitable strike price in Put Option shall be ₹ 950 (₹ 1000 – 5% of ₹ 1000).

If Ram does so, assuming that the spot price after 1 month is ₹ 942* then overall position will be as follows:

Spot Price after 1 month	Stock Value	Put Payoff	Initial Cash Flow	Total
S < 950	S	950 – S	- 8	942 - S
S > 950	S	-	- 8	S – 8

Thus, from the above, it can be seen that the value of holding of Ram shall never be less than ₹ 942 as Put Option will compensate for loss below spot price of ₹ 950. However, this strategy will involve a cost of ₹ 8.

* Students can assume any price other than ₹ 942 and could answer accordingly.

Total Marks = 6

- (c) To some extent this statement is correct as in practical implementation of fair value within the valuation context it would be better to identify assets that are similar to the ones held by the acquiree company so that the values can be compared. Trying to get a value that would be the nearest to the market price would mean that the valuation of a particular portfolio, or a divestiture in an entity, would happen at an agreeable price that fits into the normal distribution.

In one sense, we are indeed using the relative valuation in a limited approach when we speak about expected market returns, or when we are adopting an index-based comparative. The more the asset pricing gets correlated to the similar assets in the market, the more inclusive it gets. Thus, when we are comparing bonds, the closer the YTM of the bond to the government index of return, the more credible it gets when it comes to pricing.

The Relative valuation, also referred to as 'Valuation by multiples,' uses financial ratios to derive at the desired metric (referred to as the 'multiple') and then compares the same to that of comparable firms. Comparable firms would mean the ones having similar asset and risk dispositions and assumed to continue to do so over the comparison period. In the process, there may be extrapolations set to the desired range to achieve the target set. **Total Marks = 4**

3. (a) The range of values using P/E Ratio and EPS either historic or projected are as follows.

EPS	Value (₹)	P/E Ratio	Value	Value of Shares
Historic	3.40	Lowest	4	13.60
Historic	3.40	Current	5	17.00
Historic	3.40	Highest	7	23.80
Expected	4.00	Lowest	4	16.00
Expected	4.00	Current	5	20.00
Expected	4.00	Highest	7	28.00

Total Marks = 6

- (b) NPV for bond refunding

	₹
PV of annual cash flow savings (W.N. 2) (3,49,600 × PVIFA 8%,25) i.e. 10.675	37,31,980
Less: Initial investment (W.N. 1)	<u>29,20,000</u>
NPV	<u>8,11,980</u>

Recommendation: Refunding of bonds is recommended as NPV is positive.

Working Notes:

- (1) Initial investment:

(a) Call premium		
Before tax (1,140 – 1,000) × 30,000	42,00,000	
Less tax @ 40%	<u>16,80,000</u>	
After tax cost of call prem.		25,20,000
(b) Floatation cost		4,00,000

(c) Overlapping interest		
Before tax ($0.14 \times 2/12 \times 3$ crores)	7,00,000	
Less: tax @ 40%	<u>2,80,000</u>	4,20,000
(d) Tax saving on unamortised discount on old bond $25/30 \times 9,00,000 \times 0.4$		(3,00,000)
(e) Tax savings from unamortised floatation Cost of old bond $25/30 \times 3,60,000 \times 0.4$		<u>(1,20,000)</u>
		<u>29,20,000</u>

(2) Annual cash flow savings:

(a) Old bond

(i) Interest cost (0.14×3 crores)	42,00,000	
Less tax @ 40%	<u>16,80,000</u>	25,20,000
(ii) Tax savings from amortisation of discount $9,00,000/30 \times 0.4$		(12,000)
(iii) Tax savings from amortisation of floatation cost $3,60,000/30 \times 0.4$		<u>(4,800)</u>
Annual after tax cost payment under old Bond (A)		<u>25,03,200</u>

(b) New bond

(i) Interest cost before tax (0.12×3 crores)	36,00,000	
Less tax @ 40%	<u>14,40,000</u>	
After tax interest		21,60,000
(ii) Tax savings from amortisation of floatation cost ($0.4 \times 4,00,000/25$)		<u>(6,400)</u>
Annual after tax payment under new Bond (B)		<u>21,53,600</u>
Annual Cash Flow Saving (A) – (B)		<u>3,49,600</u>

Total Marks = 10

- (c) Cyber Risk can be defined as the risk of damages due to lawsuits / compensation on account of being a victim of cyber-attack, due to which data of customers, vendors or any other counter-party can be leaked to an unauthorised, malevolent entity.

Total Marks = 4

4. (a) Forward Market Cover

Hedge the risk by buying Can\$ in 1 and 3 months time will be:

July -	$2020000 \times 0.9301 = \text{US } \$ 1878802$
Sept. -	$1410000 \times 0.9356 = \text{US } \$ 1319196$

Option Contracts

July Payment	$= 2020000 / 50,000 = 40.40$
September Payment	$= 1410000 / 50,000 = 28.20$

Company would like to take out 40 contracts for July and 28 contracts for September respectively. Therefore costs, if the options were exercised, will be:-

	July		Sept.	
	Can \$	US \$	Can \$	US \$
Covered by Contracts	2000000	1880000	1400000	1330000
Balance bought at spot rate	20000	18602	10000	9356
<u>Option Costs:</u>				
Can \$ 50000 x 40 x 0.0102		20400	---	
Can \$ 50000 x 28 x 0.0164	---			22960
Total cost in US \$ of using Option Contract		19,19,002		1362316

Decision: As the firm is stated as risk averse and the money due to be paid is certain, a fixed forward contract, being the cheapest alternative in the both the cases, would be recommended.

Total Marks = 8

(b) (1) Working Notes:

Calculation of Return on each single security

	Cost ₹ (1)	No. of Securities (2)	Total Cost (3) = (1) x (2)	Dividend/ Interest	Capital gain	Total (4)	Total Income (5) = (2) x (4)	Beta (6)	(6) x (3)
G Ltd.	10,000	1000	1,00,00,000	1,725	-200	1,525	15,25,000	0.6	60,00,000
S Ltd.	15,000	1000	1,50,00,000	1,000	1,200	2,200	22,00,000	0.8	1,20,00,000
B Ltd.	28,000	500	1,40,00,000	1,400	300	1,700	8,50,000	0.6	84,00,000
PSU Bonds	1,800	20,000	<u>3,60,00,000</u>	180	-75	105	<u>21,00,000</u>	0.10	<u>36,00,000</u>
Total			<u>7,50,00,000</u>				<u>66,75,000</u>		<u>3,00,00,000</u>

Rate of Return on earned on the Portfolio

$$\frac{\text{Dividend Earned} + \text{Capital appreciation}}{\text{Initial investment}} \times 100$$

$$= \frac{\text{₹ } 66,75,000}{\text{₹ } 7,50,00,000} \times 100 = 8.90\%$$

Weighted Average Beta of the Portfolio

$$\frac{3,00,00,000}{7,50,00,000} = 0.40$$

Expected Risk Free Rate of Return using CAPM

$$8.90\% = R_f + 0.40[12.7\% - R_f]$$

$$8.90\% = R_f + 5.08 - 0.40 R_f$$

$$3.82\% = 0.60 R_f$$

$$R_f = 6.37\%$$

Thus keeping in view the present risk appetite, the client would expect at least a return of 6.37% on Bonds.

(2) The expected return on the Portfolio using CAPM:

$$= 7\% + 0.40[12.7 - 7\%] = 9.28\%$$

Since the actual return is 8.90% which is quite lower than expected return considering the systematic risk borne by the investor and hence portfolio has not outperformed the market rather has underperformed. **Total Marks = 8**

- (c) As per Investopedia, Angel investors invest in small startups or entrepreneurs. Often, angel investors are among an entrepreneur's family and friends. The capital angel investors provide may be a one-time investment to help the business propel or an ongoing injection of money to support and carry the company through its difficult early stages.

Angel investors provide more favorable terms compared to other lenders, since they usually invest in the entrepreneur starting the business rather than the viability of the business. Angel investors are focused on helping startups take their first steps, rather than the possible profit they may get from the business. Essentially, angel investors are the opposite of venture capitalists.

Angel investors are also called informal investors, angel funders, private investors, seed investors or business angels. These are affluent individuals who inject capital for startups in exchange for ownership equity or convertible debt. Some angel investors invest through crowdfunding platforms online or build angel investor networks to pool in capital.

Angel investors typically use their own money, unlike venture capitalists who take care of pooled money from many other investors and place them in a strategically managed fund.

Though angel investors usually represent individuals, the entity that actually provides the fund may be a limited liability company, a business, a trust or an investment fund, among many other kinds of vehicles.

Angel investors who seed startups that fail during their early stages lose their investments completely. This is why professional angel investors look for opportunities for a defined exit strategy, acquisitions or initial public offerings (IPOs). **Total Marks = 4**

5. (a) (i) We can compute the Portfolio variance on the basis of Correlation between each pair of securities as follows:

$$\begin{aligned}
 &= (W_A \times W_A \times \sigma_A^2) + (W_A \times W_B \times \text{COV}_{AB}) + (W_A \times W_C \times \text{COV}_{AC}) + (W_B \times W_A \times \text{COV}_{AB}) + (W_B \times W_B \times \sigma_B^2) + \\
 &(W_B \times W_C \times \text{COV}_{BC}) + (W_C \times W_A \times \text{COV}_{CA}) + (W_C \times W_B \times \text{COV}_{CB}) + (W_C \times W_C \times \sigma_C^2) \\
 &= (0.20 \times 0.20 \times 0.015) + (0.20 \times 0.50 \times 0.030) + (0.20 \times 0.30 \times 0.020) + (0.20 \times 0.50 \times \\
 &0.030) + (0.50 \times 0.50 \times 0.025) + (0.50 \times 0.30 \times 0.040) + (0.30 \times 0.20 \times 0.020) + (0.30 \times 0.50 \\
 &\times 0.040) + (0.30 \times 0.30 \times 0.10) \\
 &= 0.0006 + 0.0030 + 0.0012 + 0.0030 + 0.00625 + 0.0060 + 0.0012 + 0.0060 + 0.0090 \\
 &= 0.0363
 \end{aligned}$$

- (ii) To compute the Portfolio variance considering the Co-movement between securities due to change in the market index first we shall compute the Beta of the portfolio is as follows:

$$0.20 \times 0.40 + 0.50 \times 0.50 + 0.30 \times 1.10 = 0.66$$

Then we shall compute the Residual Variance by separating the Systematic Risk from total risk as follows:

Systematic Risk of each security shall be computed as follows:

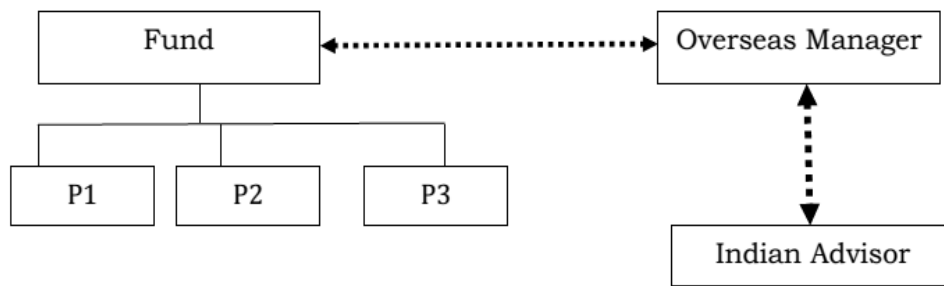
$$\beta_A^2 \times \sigma_M^2 = (0.40)^2(0.01) = 0.0016$$

$$\beta_B^2 \times \sigma_M^2 = (0.50)^2(0.01) = 0.0025$$

$$\beta_C^2 \times \sigma_M^2 = (1.10)^2(0.01) = 0.0121$$

The Residual Variance of each security

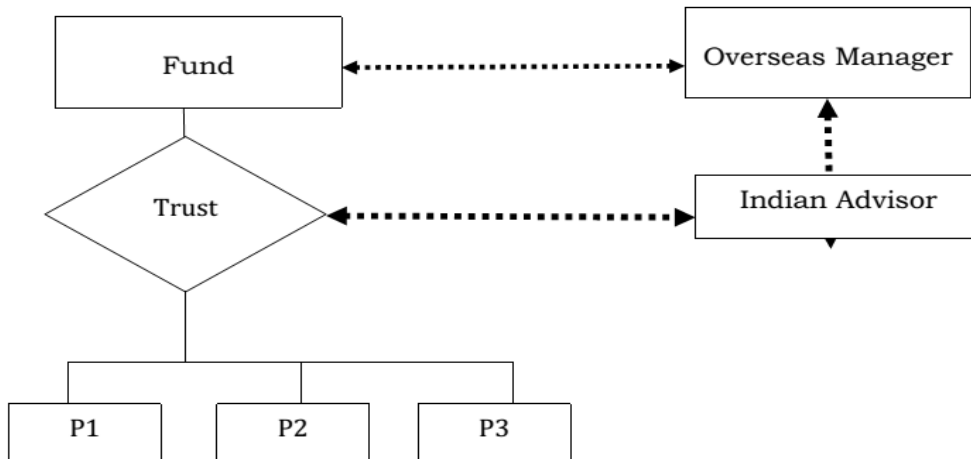
managed by an offshore manager, while the investment advisor in India carries out the due diligence and identifies deals.



Off shore structure

Unified Structure

When domestic investors are expected to participate in the fund, a unified structure is used. Overseas investors pool their assets in an offshore vehicle that invests in a locally managed trust, whereas domestic investors directly contribute to the trust. This is later device used to make the local portfolio investments.



Unified Structure

Total Marks = 4

6. (a) Working Notes:

(i) Decomposition of Funds in Equity and Cash Components

	D Mutual Fund Ltd.	K Mutual Fund Ltd.
NAV on 31.12.14	₹ 70.71	₹ 62.50
% of Equity	99%	96%
Equity element in NAV	₹ 70	₹ 60
Cash element in NAV	₹ 0.71	₹ 2.50

(ii) Calculation of Beta

(1) D Mutual Fund Ltd.

$$\text{Sharpe Ratio} = 2 = \frac{E(R) - R_f}{\sigma_D} = \frac{E(R) - R_f}{11.25}$$

$$E(R) - R_f = 22.50$$

$$\text{Treynor Ratio} = 15 = \frac{E(R) - R_f}{\beta_D} = \frac{22.50}{\beta_D}$$

$$\beta_D = 22.50/15 = 1.50$$

(2) K Mutual Fund Ltd.

$$\text{Sharpe Ratio} = 3.3 = \frac{E(R) - R_f}{\sigma_K} = \frac{E(R) - R_f}{5}$$

$$E(R) - R_f = 16.50$$

$$\text{Treynor Ratio} = 15 = \frac{E(R) - R_f}{\beta_K} = \frac{16.50}{\beta_K}$$

$$\beta_K = 16.50/15 = 1.10$$

(iii) Decrease in the Value of Equity

	D Mutual Fund Ltd.	K Mutual Fund Ltd.
Market goes down by	5.00%	5.00%
Beta	1.50	1.10
Equity component goes down	7.50%	5.50%

(iv) Balance of Cash after 1 month

	D Mutual Fund Ltd.	K Mutual Fund Ltd.
Cash in Hand on 31.12.14	₹ 0.71	₹ 2.50
Less: Exp. Per month	₹ 0.25	₹ 0.25
Balance after 1 month	₹ 0.46	₹ 2.25

NAV after 1 month

	D Mutual Fund Ltd.	K Mutual Fund Ltd.
Value of Equity after 1 month		
70 x (1 - 0.075)	₹ 64.75	-
60 x (1 - 0.055)	-	₹ 56.70
Cash Balance	0.46	2.25
	65.21	58.95

Total Marks = 10

(b) The company had issued commercial paper worth ₹10 crores

No. of days Involves = 91 days

Interest rate applicable = 12.04 % p.a.

$$\text{Interest for 91 days} = 12.04\% \times \frac{91 \text{ Days}}{365 \text{ Days}} = 3.002\%$$

$$= \text{or } ₹ 10 \text{ crores} \times \frac{3.002}{100 + 3.002} = ₹ 29,14,507$$

$$= \text{or } ₹ 29.14507 \text{ Lakhs}$$

∴ Net amount received at the time of issue:- ₹ 10.00 Crores – ₹ 0.29151 Crores = ₹ 9.70849 Crores

Alternatively, it can also be computed as follows:

$$\text{Price} = \frac{\text{Rs.10 Crores}}{\left(1 + 12.04\% \times \frac{91 \text{ Days}}{365 \text{ Days}}\right)} = ₹ 9.70855 \text{ Crores}$$

Total Marks = 6

- (c) Yes, this statement is correct because while Exchange Position is referred to total of purchases or sale of commitment of a bank to purchase or sale foreign exchange whether actual delivery has taken place or not. In other words, all transactions for which bank has agreed with counter party are entered into exchange position on the date of the contract.

While Cash Position is outstanding balance (debit or credit) in bank's Nostro account. Since all foreign exchange dealings of bank are routed through Nostro account it is credited for all purchases and debited for sale by bank.

Therefore, all transactions effecting Cash position will affect Exchange Position not vice versa.

Total Marks = 4