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CA FINAL
GROUP I - PAPER 2
ADVANCED FINANCIAL MANAGEMENT
SUGGESTED ANSWERS
(Series 4)

PART - I (MCQs)

MCQ - 2 marks each														
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
C	B	C	C	C	A	D	B	A	D	A	A	C	D	A

PART - II (Descriptive Answers)

Answer 1A - 6 Marks

(i) Return of the stock under APT

Factor	Actual value in %	Expected value in %	Difference	Beta	Diff. x Beta
GNP	7.70	7.70	0.00	1.20	0.00
Inflation	7.00	5.50	1.50	1.75	2.63
Interest rate	9.00	7.75	1.25	1.30	1.63
Stock index	12.00	10.00	2.00	1.70	3.40
Ind. Production	7.50	7.00	0.50	1.00	0.50
Add: Risk free rate in %					8.16
Return under APT					9.25
					17.41

(i) Return of the stock under CAPM

$$= 9.25\% + 1.70 (12\% - 9.25\%)$$
$$= 13.925\%$$

Answer 1B - 4 Marks

(i) Calculation of Minimum price per share S Ltd. should accept from R Ltd.

$$\text{Value of S Ltd.} = \frac{\text{Residual Cash Flow}}{K_e - g} = \frac{\text{₹ } 54,87,000}{0.1305 - 0} = \text{₹ } 4,20,45,977$$

$$\text{Value per share of S Ltd.} = \frac{\text{₹ } 4,20,45,977}{80,00,000} = \text{₹ } 5.26$$

$$\text{Book Value per share of S Ltd.} = \frac{\text{₹ } 3,99,95,000}{80,00,000} = \text{₹ } 4.99 \text{ or ₹ } 5$$

Therefore, the **minimum price per share S Ltd. should accept from R Ltd. is ₹ 5** (current book value)

(ii) Calculation of Maximum price per share R Ltd. shall be willing to offer to S Ltd.

$$\text{Value of R Ltd.} = \frac{\text{Residual Cash Flow}}{K_e - g} = \frac{\text{₹ } 90,10,000}{0.1375 - 0} = \text{₹ } 6,55,27,273$$

$$\text{Value of Combined Entity} = \frac{\text{₹ } 1,85,00,000}{0.125 - 0} = \text{₹ } 14,80,00,000$$

Value of synergy = Value of Combined entity – Individual values of R Ltd. and S Ltd.

$$= \text{₹ } 14,80,00,000 - (\text{₹ } 4,20,45,977 + \text{₹ } 6,55,27,273)$$

$$= \text{₹ } 4,04,26,750$$

Maximum price per share R Ltd. shall be willing to offer to S Ltd. shall be computed as follows:

$$= \frac{\text{Value of S Ltd. as per Residual cash flows + Synergy benefits}}{\text{No. of Shares}}$$

$$= \frac{\text{₹ } 4,20,45,977 + \text{₹ } 4,04,26,750}{80,00,000} = \text{₹ } 10.31$$

(iii) Floor value of per share of S Ltd shall be ₹ 3.20 (current market price) and it shall **not play any role** in decision for the acquisition of S Ltd. as it is lower than its current book value.

Answer 1C – 4 Marks

In post-pandemic time, their role has been advanced in following areas in addition to traditional role:

- (i) Risk Management:** Now a days the CFOs are expected to look after the overall functioning of the framework of Risk Management system of an organisation.
- (ii) Supply Chain:** Post pandemic supply chain management system has been posing the challenge for the company to maintain the sustainable growth. Since CFOs are care takers of finance of the company, considering the financial viability of the Supply Chain Management their role has now become more critical.
- (iii) Mergers, Acquisitions, and Corporate Restructuring:** Since in recent period to maintain the growth and capture the market share there has been a spate of Mergers and Acquisitions and hence the role of CFOs has become more crucial because these are strategic decision and any error in them can lead to collapse of the whole business.
- (iv) Environmental, Social and Governance (ESG) Financing:** With the evolving of the concept of ESG their role has been shifted from traditional financing to sustainability financing.

Thus, from above discussion it can be concluded that in today's time CFOs are taking a leadership role in Value Creation for the organisation and that too on sustainable basis for a longer period.

Answer 2A – 8 Marks

(i) Forward Cover

$$\text{3-month Forward Rate} = \frac{1}{1.9726} = \text{₹ } 0.5070/\text{JY}$$

Accordingly, INR required for JY 5,00,000 $(5,00,000 \times ₹ 0.5070) = ₹ 2,53,500$

(ii) Option Cover

To purchase JY 5,00,000, XYZ shall enter into a Put Option @ JY 2.125/INR

Accordingly, outflow in INR $\left(\frac{JY 5,00,000}{2.125} \right)$ ₹ 2,35,294

Premium $\left(\frac{INR 2,35,294 \times 0.098}{1.9516} \right)$ ₹ 11,815

₹ 2,47,109

Since outflow of cash is least in case of Option same should be opted for. Further if price of INR goes above JY 2.125/INR the outflow shall further be reduced.

Answer 2B – 6 Marks

(i) Calculation of Income available for Distribution

	Units (Lakh)	Per Unit (₹)	Total (₹ in lakh)
Income from April	300	0.0765	22.9500
Add: Dividend equalization collected on issue	6	0.0765	0.4590
	306	0.0765	23.4090
Add: Income from May		0.1125	34.4250
	306	0.1890	57.8340
Less: Dividend equalization paid on repurchase	(3)	0.1890	(0.5670)
	303	0.1890	57.2670
Add: Income from June		0.1500	45.4500
	303	0.3390	102.7170
Less: Dividend Paid		0.2373	(71.9019)
	303	0.1017	30.8151

(ii) Calculation of Issue Price at the end of April

	₹
Opening NAV	18.750
Add: Entry Load 2% of ₹ 18.750	0.375
	19.125
Add: Dividend equalization collected on issue	0.0765
	19.2015

(iii) Calculation of Repurchase Price at the end of May

	₹
Opening NAV	18.750
Less: Exit Load 2% of ₹ 18.750	(0.375)

	18.375
Add: Dividend equalization paid on repurchase	0.1890
	18.564

(iv) Closing NAV

		₹ in lakh
Opening Net Asset Value (₹ 18.75 x 300)		5,625.0000
Portfolio Value Appreciation		425.4700
Issue of Fresh Units (6 x 19.2015)		115.2090
Income Received (22.950 + 34.425 + 45.450)		102.8250
		6,268.504
Less: Units repurchased (3 x 18.564)	55.692	
Income Distributed	<u>71.9019</u>	(127.5939)
Closing Net Asset Value		6,140.9101
Closing Units (300 + 6 – 3) lakh		303 lakh
∴ Closing NAV as on 30th June		₹ 20.2670

Answer 3A – 8 Marks

- (i) The risk free rate of interest and risk factor for each of the projects are given. The risk adjusted discount rate (RADR) for different projects can be found on the basis of CAPM as follows:

$$\text{Required Rate of Return} = I_{Rf} + (k_o - I_{Rf}) \times \text{Risk Factor}$$

$$\text{For P-I: RADR} = 0.10 + (0.15 - 0.10) \times 1.80 = \mathbf{19\%}$$

$$\text{For P-II: RADR} = 0.10 + (0.15 - 0.10) \times 1.00 = \mathbf{15\%}$$

$$\text{For P-III: RADR} = 0.10 + (0.15 - 0.10) \times 0.60 = \mathbf{13\%}$$

- (ii) The three projects can now be evaluated at 19%, 15% and 13% discount rate as follows:

Project P-I

Annual Inflows	₹ 6,00,000
PVAF (19%, 4)	2.639
PV of Inflows (₹ 6,00,000 x 2.639)	₹ 15,83,400
Less: Cost of Investment	(₹ 15,00,000)
Net Present Value	₹ 83,400

Project P-II

Year	Cash Inflow (₹)	PVF @ 15%	PV (₹)
1	6,00,000	0.870	5,22,000
2	4,00,000	0.756	3,02,400
3	5,00,000	0.658	3,29,000
4	2,00,000	0.572	1,14,400
Total Present Value			12,67,800

Less: Cost of Investment	(11,00,000)
Net Present Value	1,67,800

Project P-III

Year	Cash Inflow (₹)	PVF @ 13%	PV (₹)
1	4,00,000	0.885	3,54,000
2	6,00,000	0.783	4,69,800
3	8,00,000	0.693	5,54,400
4	12,00,000	0.613	7,35,600
Total Present Value			21,13,800
Less: Cost of Investment			(19,00,000)
Net Present Value			2,13,800

Project P-III has highest NPV. So, it should be accepted by the firm.

Answer 3B - 6 Marks**(a) Calculation of Profit after tax (PAT)**

		₹
Profit before interest and tax (PBIT)		32,00,000
Less: Debenture interest (₹ 64,00,000 x 12/100)		7,68,000
Profit before tax (PBT)		24,32,000
Less: Tax @ 35%		8,51,200
Profit after tax (PAT)		15,80,800
Less: Preference Dividend (₹ 40,00,000 x 8/100)	3,20,000	
Equity Dividend (₹ 80,00,000 x 8/100)	<u>6,40,000</u>	9,60,000
Retained earnings (Undistributed profit)		6,20,800

(b) Calculation of Interest and Fixed Dividend Coverage

$$= \frac{\text{PAT} + \text{Debenture Interest}}{\text{Debenture Interest} + \text{Preference Dividend}}$$

$$= \frac{15,80,800 + 7,68,000}{7,68,000 + 3,20,000} = \frac{23,48,800}{10,88,000} = 2.16 \text{ times}$$

(c) Calculation of Capital Gearing Ratio

$$\text{Capital Gearing Ratio} = \frac{\text{Fixed interest bearing funds}}{\text{Equity shareholders' funds}}$$

$$= \frac{\text{Preference Share Capital} + \text{Debentures}}{\text{Equity Share Capital} + \text{Reserves}} = \frac{40,00,000 + 64,00,000}{80,00,000 + 32,00,000} = \frac{1,04,00,000}{1,12,00,000} = 0.93$$

(d) Calculation of Yield on Equity Shares:

Yield on equity shares is calculated at 50% of profits distributed and 5% on undistributed profits:

(₹)

50% on distributed profits (₹ 6,40,000 x 50/100) 3,20,000

5% on undistributed profits ($\text{₹ } 6,20,800 \times 5/100$)31,040

Yield on equity shares

3,51,040

$$\begin{aligned}\text{Yield on equity shares \%} &= \frac{\text{Yield on shares}}{\text{Equity share capital}} \times 100 \\ &= \frac{3,51,040}{80,00,000} \times 100 = \mathbf{4.39\%}\end{aligned}$$

(e) Calculation of Expected Yield on Equity shares

- (a) Interest and fixed dividend coverage of Sun Ltd. is 2.16 times but the industry average is 3 times. Therefore, risk premium is added to Sun Ltd. Shares @ 1% for every 1 time of difference.

$$\text{Risk Premium} = (3.00 - 2.16) (1\%) = 0.84 (1\%) = 0.84\%$$

- (b) Capital Gearing ratio of Sun Ltd. is 0.93 but the industry average is 0.75 times. Therefore, risk premium is added to Sun Ltd. shares @ 2% for every 1 time of difference.

$$\text{Risk Premium} = (0.75 - 0.93) (2\%) = 0.18 (2\%) = 0.36\%$$

	(%)
Normal return expected	9.60
Add: Risk premium for low interest and fixed dividend coverage	0.84
Add: Risk premium for high interest gearing ratio	<u>0.36</u>
	<u>10.80</u>

(f) Value of Equity Share

$$= \frac{\text{Actual yield}}{\text{Expected yield}} \times \text{Paid-up value of share} = \frac{4.39}{10.80} \times 100 = \mathbf{₹ 40.65}$$

Answer 4A – 6 Marks**(i) Return for a US Investor**

$$\begin{aligned}&= \frac{\text{Ending Price} - \text{Initial Price}}{\text{Initial Price}} \times 100 \\ &= \frac{1919 - 2028}{2028} \times 100 = \mathbf{-5.37\%}\end{aligned}$$

(ii) Return of Mr. X

Initial Investment in ₹	(A)	₹ 1.58 Crore
Applicable Exchange Rate on 1.1.2025	(B)	₹ 62.25
Equivalent US\$	(C) = A/B	US\$ 2,53,815.26
Purchase Price of Standard & Poor Index	(D)	2028
No. of Standard & Poor Indices Purchased	(E) = C/D	125.16
Ending Price of Standard & Poor Index	(F)	1919
Proceeds realised in US\$ on sale of Standard & Poor Index	(G) = E x F	US\$ 2,40,182.04
Applicable Exchange Rate on 1.1.2026	(H)	₹ 67.25
Proceeds realised in ₹ on sale of Standard & Poor Index	(I) = G x H	₹ 1,61,52,242

$$\text{Rate of Return} = \frac{\text{₹ } 1,61,52,242 - \text{₹ } 1,58,00,000}{\text{₹ } 1,58,00,000} \times 100 = 2.23\%$$

(iii) Rate of Return had the amount been invested in India

Purchase Price of Indian Index = 7395; Let Ending Price of Indian Index = X

$$\text{Then, to be indifferent with return in International Market} = \frac{X - 7395}{7395} \times 100 = 2.23$$

Price of Indian Index to be indifferent = 7559.90 say **7560**

Answer 4B - 4 Marks

- (i)** The Break-even price at which Debenture can be converted shall be equivalent to Present Value of stream of cash flows from holding debenture till maturity and it shall be computed as follows:

$$PV = \text{₹ } 15.28 \times PVIFA (10\%, 5) + \text{₹ } 100 \times PVIF (10\%, 5)$$

$$= \text{₹ } 15.28 \times 3.7908 + \text{₹ } 100 \times 0.6209$$

$$= \text{₹ } 57.92 + \text{₹ } 62.09 = \text{₹ } 120$$

$$\text{Thus, Break Even price} = \frac{\text{₹ } 120}{\text{₹ } 20} = \text{₹ } 6 \text{ per share}$$

- (ii)** The ideal period in which BIL should convert and dispose of share will be 01.01.23 to 30.06.25 as during this period market price of share is most likely to exceed its Break-even price.

Answer 4C - 4 Marks

Obstacle given in question is Accounting.

Following are other problems faced in growth of Securitization of instruments in Indian context:

- (i) Stamp Duty:** Stamp Duty is one of the obstacles in India. Under Transfer of Property Act, 1882, a mortgage debt stamp duty which even goes upto 12% in some states of India and this impeded the growth of securitization in India. It should be noted that since pass through certificate does not evidence any debt only able to receivable, they are exempted from stamp duty.
- Moreover, in India, recognizing the special nature of securitized instruments in some states has reduced the stamp duty on them.
- (ii) Taxation:** Taxation is another area of concern in India. In the absence of any specific provision relating to securitized instruments in Income Tax Act, experts' opinion differs a lot. Some are of opinion that SPV as a trustee is liable to be taxed in a representative capacity. While, others are of view that instead of SPV, investors will be taxed on their share of income. Clarity is also required on the issues of capital gain implications on passing payments to the investors.
- (iii) Lack of standardization:** Every originator following his own format for documentation and administration having lack of standardization is another obstacle in the growth of securitization.
- (iv) Inadequate Debt Market:** Lack of existence of a well-developed debt market in India is another obstacle that hinders the growth of secondary market of securitized or asset backed securities.
- (v) Ineffective Foreclosure laws:** For many years efforts are on for effective foreclosure but still foreclosure laws are not supportive to lending institutions and this makes securitized instruments especially mortgaged backed securities less attractive as lenders face difficulty in transfer of property in event of default by the borrower.

Answer 5A – 6 Marks

Applying the Black Scholes Formula, Value of the Call option now:

$$C = S N(d_1) - K e^{(-rt)} N(d_2)$$

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

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

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

σ = Standard deviation of continuously compounded annual return

ln = natural logarithm

$$d_1 = \frac{\ln(1.0667) + (0.12 + 0.08) 0.5}{0.40 \sqrt{0.5}}$$

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

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

$$= \mathbf{0.5820}$$

$$d_2 = 0.5820 - 0.2828 = \mathbf{0.2992}$$

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

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

$$\text{Value of option} = S N(d_1) - K e^{(-rt)} N(d_2)$$

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

$$N(d_1) = N(0.5820) = \mathbf{0.7196}$$

$$N(d_2) = N(0.2992) = \mathbf{0.6176}$$

$$\text{Value of option} = 80 \times 0.7196 - \frac{75}{1.062} \times 0.6176$$

$$= 57.57 - 70.62 \times 0.6176$$

$$= 57.57 - 43.61$$

$$= \mathbf{₹ 13.96}$$

Note: Values of $N(d_1)$ and $N(d_2)$ have been computed by interpolating the values of cumulative areas under respective numbers of SD from Mean (z) given in the question.

Cumulative Areas under respective numbers of SD from Mean (z) are as follows:

Number of S.D. from Mean, (z)	Cumulative Area
0.25	0.5987
0.30	0.6179
0.55	0.7088
0.60	0.7257

Answer 5B – 4 Marks

- (i) The GOI Security has semi-annual coupon of 30 April hence the accrual period is 1 May 2021 to 30 June 2021 i.e. 61 days. Therefore,

$$\text{Accrued Interest on Security} = 10,000 \times 10\% \times 61/365 = \text{₹ } 167.12$$

$$\text{Dirty Price} = \text{₹ } 9,872 + \text{₹ } 167.12 = \text{₹ } 10,039.12$$

$$\text{Dirty Price Adjusted for 3\% haircut} = \frac{\text{₹ } 10,039.12}{1.03} = \text{₹ } 9,746.72$$

$$\text{Nominal Amount of Securities Required} = 400 \times \frac{10,000}{9,746.72} = \text{₹ } 410.39447 \text{ crore}$$

$$\text{No. of securities required} = \frac{410.39447}{9,746.72} = 4,21,059 \text{ (Approx.)}$$

- (ii) The original cash amount to be repaid at the end

$$\text{₹ } 400 \text{ crore} \times [1 + (0.1165 \times 14/365)] = \text{₹ } 401.7874 \text{ crore}$$

Answer 5C – 4 Marks

Tag-alone clause means VC may put a condition that promoter must sell a part of his stake along with the VC.

Deal Structuring: Once the case passes through the due diligence, it would now go through the deal structuring. The **deal is structured in such a way that both parties win**. In many cases, the convertible structure is brought in to ensure that the promoter retains the right to buy back the share.

Exit plan: At the time of investing, the VC would ask the promoter or company to spell out in detail the exit plan. Mainly, exit happens in **two ways**:

- (a) One way is '**sell to third party(ies)**'. This sale can be in the form of IPO or Private Placement to other VCs.
- (b) The second way to exit is that **promoter would give a buy back commitment at a pre agreed rate** (generally between IRR of 18% to 25%). In case the exit is not happening in the form of IPO or third-party sell, the promoter would buy back. In many deals, the promoter buyback is the first refusal method adopted i.e. the promoter would get the first right of buyback.

Answer 6A – 8 Marks

Let portfolio standard deviation be σ_p

Market Standard Deviation = σ_m

Coefficient of correlation = r

$$\text{Portfolio Beta } (\beta_p) = \frac{\sigma_p r}{\sigma_m}$$

$$\text{Required portfolio return } (R_p) = R_f + \beta_p (R_m - R_f)$$

Portfolio	Beta	Return from the portfolio (R _p) (%)
A	1.75	17.75
B	0.90	13.50
C	0.65	12.25
D	1.25	15.25
E	0.90	13.50

Portfolio	Sharpe Method		Treynor Method		Jensen's Alpha	
	Ratio	Rank	Ratio	Rank	Ratio	Rank
A	4.00	IV	5.71	V	1.25	V
B	3.00	V	6.67	IV	1.50	IV
C	7.50	I	9.23	I	2.75	II
D	4.25	III	6.80	III	2.25	III
E	4.50	II	9.00	II	3.60	I

Answer 6B – 6 Marks

The SMD Bank shall choose those CTD (Cheapest-to-Deliver) Bonds from the basket of deliverable Bonds which gives maximum profit computed as follows:

Profit = Future Settlement Price x Conversion Factor – Quoted Spot Price of Deliverable Bond

Accordingly, the profit of each bond shall be computed as follows:

Security (1)	Future Settlement Price (2)	Conversion Factor (3)	(4) = (2) x (3)	Quoted Price of Bonds (5)	Profit (6) = (4) – (5)
6.55 GOI 2028	10,000	0.9060	9,060	9,264	-204
6.80 GOI 2032	10,000	0.9195	9,195	8,775	420
6.85 GOI 2029	10,000	0.9643	9,643	9,723	-80
8.44 GOI 2030	10,000	1.1734	11,734	11,463	271
8.85 GOI 2031	10,000	1.2428	12,428	12,017	411

Since, maximum profit to the Bank is in case of 6.80 GOI 2032, same should be opted for.