The WAY CA test series

CA FINAL **P2: ADVANCED FINANCIAL MANAGEMENT** **19.03.2025**

[SYLLABUS : Forex Basics, International Financial Management]

TIME : 1 HR 45 MIN **TOTAL : 60 MARKS**

PART A : MCQ ANSWERS

Question : 1 **2 Marks**

b) 1.3605 Million

Question : 2 **2 Marks**

c) 21.07%

Question : 3 **2 Marks**

c) Rs. 48.624 million

Question : 4 **2 Marks**

c) Rs. 2,28,250

Question : 5 **2 Marks**

b) ₹ 28.8912

PART B : DESCRIPTIVE SOLUTIONS

Question : 1

XYZ plc shall be ready to undertake this swap arrangement only if it receives the interest on the surplus funds if invested on individual basis as follows:

	Interest	Amt. after 91 days	Conversion in £
Holland € 1,450,000 × 0.02 × 91/360	€7,330.56	€1,457,330.56	£1,004,829.42 (1,457,330.56 × 0.6895)
Switzerland CHF 1,996,154 × 0.005 × 91/360	CHF2,522.92	CHF1,998,676.92	£865,303.02 (1,998,676.92 ÷ 2.3098)
UK £150,000 × 0.01 × 91/360	£379.17	£150,379.17	£150,379.17
Total GBP at 91 days			**£2,020,511.61**

Swap to Sterling

Sell €1,450,000 (Spot at 0.6858) buy £	£994,410.00
Sell CHF1,996,154 (Spot at 2.3326) buy £	£855,763.53
Independent GBP amount	£150,000.00
	£2,000,173.53
Amount accrued on Individual Basis (Principal + Interest)	£2,020,511.61
Interest Required	£20,338.08
Required Interest Rate on Per Annum Basis $\frac{20,338.08}{2,000,173.53} \times \frac{360}{91} \times 100$	**4.023%**

Thus, the minimum rate that should be offered is 4.023%

Question : 2

Option I (To finance the purchases by availing loan at 18% per annum):

Cost of Equipment	₹ (In Lakhs)
3400 lakh yen at ₹100 = 340 yen	1,000.00
Add: Interest at 4.5% I Quarter	45.00
Add: Interest at 4.5% II Quarter (on ₹1045 lakhs)	47.03
Total outflow in Rupees	**1,092.03**
Alternatively, interest may also be calculated on compounded basis, i.e., ₹1000 × $[1.045]^2$	₹1092.03

Option II (To accept the offer from foreign branch):

Cost of Letter of Credit	
At 1% on 3400 lakhs yen at ₹100 = 340 yen	₹10.00 lakhs
Add: Interest for 2 Quarters	₹0.90 lakhs
(A)	**₹10.90 lakhs**
Payment at the end of 180 days:	
Cost	₹3400.00 lakhs Yen
Interest at 2% p.a. [3400 × 2/100 × 180/365]	₹33.53 lakhs Yen
	₹3433.53 lakhs Yen
Conversion at ₹100 = 345 yen [3433.53 / 345 ×100] **(B)**	**₹995.23 lakhs**
Total Cost: (A) + (B)	**₹1006.13 lakhs**

Question : 3

(1) Yield from Investment in Equity Trading Index in Japan

Conversion of GBP 200 million in JPY (148.0002)	JPY 29600.04 Million
Dividend Income	JPY 1182.00 Million
Stock Lending	JPY 10.00 Million
Investment Value at End	JPY 29008.0392 Million

Amount available at End	JPY 30200.0392 Million
Forward Rate of 30.06.2019	JPY 150/ GBP
Amount to be Remitted back to London	GBP 201.3336 Million
Gain = GBP 201.3336 – GBP 200	**GBP 1.3336 Million**

(2) Fixed Income Desk of US

Conversion of GBP 200 million in USD (1.28000)	USD 256.00 Million
Add: Interest @ 5% p.a. for 6 months	USD 6.40 Million
Amount available at End	USD 262.40 Million
Forward Rate of 30.06.2019	USD 1.30331/ GBP
Amount to be Remitted back to London	GBP 201.3335 Million
Gain = GBP 201.3335 – GBP 200	**GBP 1.3335 Million**

Decision: Investment in Japanese Yen is preferred over the investment in USD G- Sec as there is a marginal gain. From a risk perspective, the company should go for Option-2 Investment in G-Secs as they are risk free or

The equivalent amount at the end of 6 months shall be almost same in both the options. The bank can go for any of the options.

However, from risk perspective, the investment in fixed income desk of US is more beneficial as the chance of variation in fixed income securities is less as compared to Equity Desk.

Question : 4

(i) For 3 months, rCAD = 2.25% and rDEM = 1.75%. Since the exchange rate is in CAD/DEM term the appropriate equation for Interest Rate Parity is as follows:

$$\frac{F}{S} = \frac{(1+r_{CAD})}{(1+r_{DEM})} = \frac{0.780}{0.775} = \frac{(1+0.0225)}{(1+0.0175)} = 1.00645 \neq 1.00491$$

Since both sides are not equal, Interest Rate Parity does not hold.

(ii) Since IRP does not hold there is an arbitrage opportunity.

Interest Differential = 2.25% - 1.75% = 0.50%

Premium = (0.780-0.775) / 0.775 × 100 = 0.645%

Since the interest rate differential is smaller than the premium, it will be profitable to place money in Deutschmarks the currency whose 3-months interest is lower. The following operations are carried out:

(i) Borrow CAD 1 Million at 9 per cent for 3- months;
(ii) Change this sum into DEM at the spot rate = (1,000,000/0.775) = 1,290,323
(iii) Place DEM 1,290,323 in the money market for 3 months to obtain a sum of DEM

Principal:	1,290,323
Add: Interest @ 7% for 3 Months =	22,581
Total	1,312,904

(iv) Sell DEM at 3-months forward to obtain CAD = (1,312,904 × 0.780)
= CAD 1,024,065

(v) Refund the debt taken in CAD with the interest due on it, i.e.,

	CAD
Principal	1,000,000
Add: Interest @9% for 3 months	22,500
Total	1,022,500

(vi) Net arbitrage gain = CAD 1,024,065 – CAD 1,022,500 = CAD 1,565

Question : 5

(i) Nominal rate of return to the US investor

Size of investment ($)	20,00,000
Size of investment (₹) ($20,00,000 × 42.50)	8,50,00,000
Sensex at T_0	3,256
No. of units of Sensex that can be purchased at T_0 (₹8,50,00,000/3,256)	**26,105**
Sensex at T_1	3,765
Sale of Sensex (26,105 × 3,765)	**9,82,85,325**
US$ at T_1	₹43.90
Equivalent Amount in US$	**22,38,846**
Gain in US$ (22,38,846 – 20,00,000)	2,38,846
Nominal rate to US investor (2,38,846 /20,00,000)	**11.94%**

(ii) Real Appreciation/Depreciation of Rupee

Real Exchange Rate (Buying) = 43.85 [(1+0.05) / (1+0.09)] = 42.24

Real Appreciation of Rs. = (42.50 - 42.24) / 42.50 x 100 = 0.61%

(iii) Exchange rate if relevant purchasing power parity holds

$$\text{Buying Rate} = 42.50\ \frac{(1+0.09)}{(1+0.05)} = 44.12$$

$$\text{Selling rate} = 42.60\ \frac{(1+0.09)}{1+0.05} = 44.22$$

Exchange rate = 44.12/44.22

(iv) Real return to Indian Investor in Sensex

Nominal Return = (3765 – 3256) / 3256 x 100 = 15.63 %

Real Return = (1.1563) / 1.09 – 1 = 0.0608 or 6.08%

Question : 6

Working Notes:

i. Computation of Forward Rates

End of Year	NC	NC/₹
1	NC 1.60 × $\left(\frac{(1+0.09)}{(1+0.08)}\right)$	1.615
2	NC 1.615 × $\left(\frac{(1+0.09)}{(1+0.08)}\right)$	1.630
3	NC 1.630 × $\left(\frac{(1+0.09)}{(1+0.08)}\right)$	1.645

(ii) NC Cash Flows converted in Indian Rupees

Year	NC (Million)	Conversion Rate	₹(Million)
0	-25.00	1.600	-15.625
1	2.60	1.615	1.61
2	3.80	1.630	2.33
3	4.10	1.645	2.49

iii. Net Present Value

Year	Cash Flow in India	Cash Flow in Nepal	Total	PVF @9%	PV
0	---	-15.625	-15.625	1	-15.625
1	2.869	1.61	4.479	0.917	4.107
2	4.2	2.33	6.53	0.842	5.498
3	4.6	2.49	7.09	0.772	5.473
				NPV	**-0.547**

iv. Modified Internal Rate of Return

	Year			
	0	1	2	3
Cash Flow (₹ Million)	-15.625	4.479	6.53	7.09
Year 1 Cash Inflow reinvested for 2 years (1.188 × 4.479)				5.32
Year 2 Cash Inflow reinvested for 1 Year (1.090 × 6.53)				7.12
				19.53

$$MIRR = \sqrt[n]{\frac{\text{Terminal cashflow}}{\text{Initial Outlay}}} - 1 = \sqrt[3]{\frac{19.53}{15.625}} - 1 = 0.0772 \text{ say } 7.72\%$$

Question : 7 **4 Marks**

To evaluate whether investment in same project is a viable option or not, we shall compute the NPV of the project.

Working Note:

1. Expected Exchange Rates

End of Year	Calculation for Exchange Rate (INR/MUR)	Exchange Rate (INR/MUR)
1	INR 1.88 x (1 + 0.06) / (1 + 0.05)	1.8979
2	INR 1.8979 x (1 + 0.06) / (1 + 0.05)	1.9160
3	INR 1.9160 x (1 + 0.06) / (1 + 0.05)	1.9342
4	INR 1.9342 x (1 + 0.06) / (1 + 0.05)	1.9526

2. Initial Investment = MUR 100 Million x INR 1.88 = INR 18.80 Crore

Working Capital (Year 1) = MUR 2 Million x 1.8979 = INR 0.3796 crore

Working Capital (Year 2) = MUR 2 Million × 1.9160 = INR 0.3832 crore

Working Capital (Year 3) = MUR 2 Million × 1.9342 = INR 0.3868 crore

Working Capital (Year 4) = MUR 2 Million × 1.9526 = INR 0.3905 crore

3. WACC = 40% x 10% + 60% x 12% = 11.20%

4. Inflation adjusted Revenue

Year	Revenue (₹)	Revenue (Inflation Adjusted) (₹)
1	6.00 crore	6.60 crore
2	7.00 crore	8.393 crore
3	8.00 crore	10.3594 crore
4	8.00 crore	11.0845 crore

5. Inflation adjusted Cost

Year	Cost (₹)	Cost (Inflation Adjusted) (₹)
1	3.00 crore	3.3600 crore
2	4.00 crore	4.9280 crore
3	4.00 crore	5.3715 crore
4	4.00 crore	5.8012 crore

6. Annual cash flows (in crores)

	Year 1	Year 2	Year 3	Year 4
Revenue (₹ crore)	6.6	8.393	10.3594	11.0845
Less: Cost (₹ crore)	3.36	4.928	5.3715	5.8012
Less: Depreciation (₹ crore)	1.8	1.8	1.8	1.8
Profit before Tax (PBT) (₹ crore)	1.44	1.665	3.1879	3.4833
Tax @ 30% (₹ crore)	0.432	0.4995	0.9564	1.045
Profit after Tax (₹ crore)	1.008	1.1655	2.2315	2.4383
Add: Depreciation (₹ crore)	1.8	1.8	1.8	1.8
Cash Flows (₹ crore)	2.808	2.9655	4.0315	4.2383

NPV of the Project

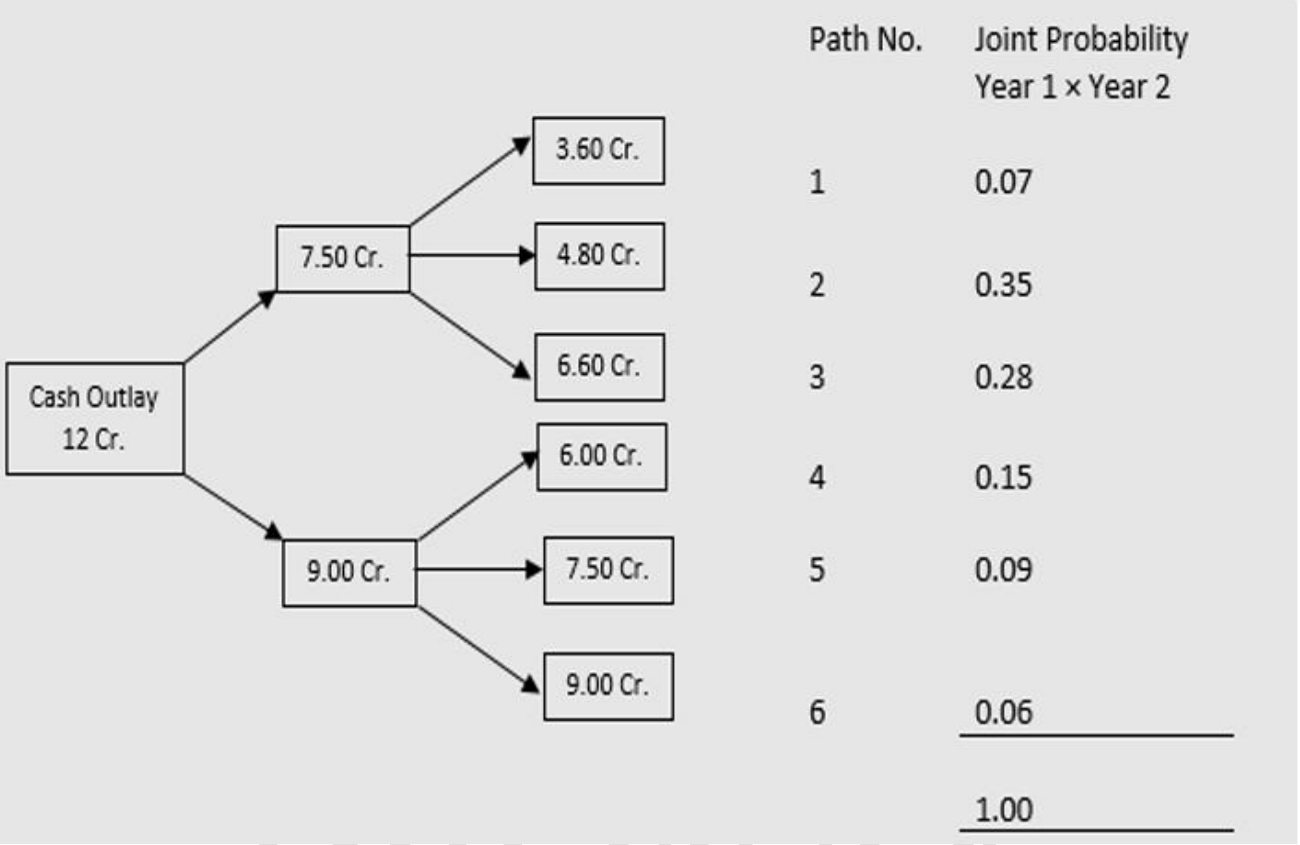
	Year 0	Year 1	Year 2	Year 3	Year 4
Initial Investment (₹ Crore)	(18.8)				
Working Capital (₹ Crore)		(0.3796)	(0.3832)	(0.3868)	(0.3905)
Scrap Value (₹ Crore)	0.8				
W.C Recovered (₹ Crore)	1.5401				
Annual Cash Flows (₹ Crore)		2.808	2.9655	4.0315	4.2383
Net Cash Flow (₹ Crore)	(18.8)	2.4284	2.5823	3.6447	6.1879
Exchange Rate	1.88	1.8979	1.916	1.9342	1.9526
Cash Flows (in Million MUR)	(100)	12.7952	13.4776	18.8434	31.6906
PVF@11.20%	1	0.8993	0.8087	0.7273	0.654
Present value (in Million MUR)	(100)	11.5067	10.8993	13.7048	20.7257

Net Present Value = - MUR 43.1635 Million

Advise: Since NPV of the project is negative the proposal is not a viable option for investment

Question : 8 **6 Marks**

(i) The decision tree diagram is presented in the chart, identifying various paths and outcomes, and the computation of various paths/outcomes and NPV of each path are presented in the following tables:



(ii) Path The Net Present Value (NPV) of each path at 15% discount rate is given below: (Rs. In Crores)

Path	Year 1 Cash Flows (₹)	Year 2 Cash Flows (₹)	Total Cash Inflows (PV) (₹)	Cash Outflows (₹)	NPV (₹)
1.	7.50 × 0.870 = 6.53	3.60 × 0.756 = 2.72	9.25	(12)	(-) 2.75
2.	6.53	4.80 × 0.756 = 3.63	10.16	(12)	(-) 1.84
3.	6.53	6.60 × 0.756 = 4.99	11.52	(12)	(-)0.48
4.	9.00 × 0.870 = 7.83	6.00 × 0.756 = 4.54	12.37	(12)	0.37
5.	7.83	7.50 × 0.756 = 5.67	13.50	(12)	1.50
6.	7.83	9.00 × 0.756 = 6.80	14.63	(12)	2.63

Statement showing Expected Net Present Value (Rs. In Crores)

Path	NPV (₹)	Joint Probability	Expected NPV (₹)
1	(-) 2.75	0.07	(-) 0.19
2	(-) 1.84	0.35	(-) 0.64
3	(-) 0.48	0.28	(-) 0.13
4	0.37	0.15	0.06
5	1.50	0.09	0.14
6	2.63	0.06	0.16
			(-) 0.60

(iii) The best outcome will be path 6 when the NPV is at Rs. 2.63 crore. The probability of occurrence of this NPV is 6% and hence expected NPV of Rs. 0.16 crore

(iv) If the worst outcome is realized the project will yield NPV of Negative Rs. 2.75 crore. The probability of occurrence of this NPV is 7% and hence Negative NPV of Rs. 0.19 crore (path 1).

(v) The project should not be accepted because the expected NPV is negative Rs. 0.60 crore based on joint probability.