

**CA FINAL**  
**STRATEGIC FINANCIAL MANAGEMENT**  
**INTEREST RATE RISK MANAGEMENT & RISK MANAGEMENT**  
**TEST PAPER**

Time Allowed – 1 Hour 30 Minutes

Maximum Marks –35

- *The question paper consists of questions with serial number(1-7)*
- *Answer all questions.*
- *Marks are indicated against each question.*

1. The following details are related to the borrowing requirements of two companies ABC Ltd. and DEF Ltd.

Company	Requirement	Fixed Rates Offered	Floating Rates Offered
ABC Ltd	Fixed Rupee Rate	4.5%	PLR + 2%
DEF Ltd.	Floating Rupee Rate	5.0%	PLR + 3%

Both Companies are in need of Rs. 2,50,00,000 for a period of 5 years. The interest rates on the floating rate loans are reset annually. The current PLR for various period maturities are as follows:

Maturity (Years)	PLR (%)
1	2.75
2	3.00
3	3.20
4	3.30
5	3.375

DEF Ltd. has bought an interest rate Cap at 5.625% at an upfront premium payment of 0.25%.

- a. You are required to exhibit how these two companies can reduce their borrowing cost by adopting swap assuming that gains resulting from swap shall be share equity among them.
- b. Further calculate cost of funding to these two companies assuming that expectation theory holds good for the 4 years.

**2.5 + 2.5 = 5 Marks**

2. a. Suppose that a 1-year cap has a cap rate of 8% and a notional amount of ₹ 100 crore. The frequency of settlement is quarterly and the reference rate is 3-month MIBOR. Assume that 3-month MIBOR for the next four quarters is as shown below.

Quarters	3-months MIBOR (%)
1	8.70
2	8.00
3	7.80
4	8.20

You are required to compute payoff for each quarter.

- b. Suppose that a 1-year floor has a floor rate of 4% and a notional amount of ₹ 200 crore. The frequency of settlement is quarterly and the reference rate is 3-month MIBOR. Assume that 3-month MIBOR for the next four quarters is as shown below.

Quarters	3-months MIBOR (%)
1	4.70
2	4.40
3	3.80
4	3.40

You are required to compute payoff for each quarter.

**2.5 + 2.5 = 5 Marks**

3. Euroloan Bank has a differential advantage in issuing variable-rate loans, but wishes to avoid the income risk associated with such loan. Currently bank has a portfolio €25,000,000 loans with PLR + 150bp, reset monthly PLR is currently 4%.

IB an investment bank has arranged for Euroloan to swap into a fixed interest payment of 6.5% on notional amount of loan for its variable interest income. If Euroloan agrees to this, what amount of interest is received and given in the first month? Further, assume that PLR increased by 200 bp.

**5 Marks**

4. Mr. Pranoy has recently purchased 100 shares of Super Tools Ltd. at Rs.300 per share. The volatility of the stock is 15% per annum. Mr. Pranoy has decided to hold the shares for 6 months. The 6-month European call option on the shares of Super Tools Ltd. is available at Rs.28 per share. The contract size for the option is 100 shares and the delta of call option is 0.35.

You are required to calculate for 90% confidence level

- VaR for long stock position
- VaR for long call option position  
(Assume 250 trading days in a year).

**2.5 + 2.5 = 5 Marks**

5. Consider the following information relating to a swap deal with a notional amount of \$500 million entered by a client with a swap bank:

Remaining term to maturity	4 year 9 months
Reset frequency	Semi-annual
Interest rate of the fixed leg	4%
Interest rate of the floating leg	LIBOR
LIBOR applicable to the current half- year	3.25%
Present market quote for a 5-year swap	5-year US T-note yield + 20/30 bp vs LIBOR
Current yield on 5- year US T- note	3.10%
Current 3-month LIBOR	2.95%

Considering that the client pays the fixed leg, you are required to find out value of the swap.

**5 Marks**

6. An investor has purchased 300 shares of ACC at a price of Rs.160 per share. To hedge against any fall in the stock value the investor also purchased put option on 300 shares with strike price of Rs.160. The premium is Rs.5 for each share. The delta of put option on ACC's stock is 0.30, and the standard deviation of the price of ACC stock is 25% p.a.

You are required to calculate 30-day VaR at 90% confidence level for

- The long position in the stock
- The long position in the put
- The combined position of long stock and long put.  
(Assume 250 trading days in a year).

**2 + 1.5 + 1.5 = 5 Marks**

7. A fund manager in the USA is holding 50 US Treasury bonds of 18 years and 9 months to maturity. Current quotes in the market are as follows:

Price of T- bond	131-02
Coupon rate	12%
Conversion factor	1.3782

The fund manager is concerned about a potential rise in interest rate and has decided to fully hedge the portfolio through Treasury bond futures. He has decided to protect the portfolio for 3 months and identified the following T – bond futures for hedging:

T – bond futures price	94-22
Short term financing rate	8% p.a.

You are required to

- a. Suggest the fund manager whether to buy or sell the futures, and how many futures contract to be used?
- b. Calculate the annualized return earned on the portfolio if the T- bond price and futures price after 3- month closes at
  - i. 130-05, 94-03
  - ii. 131-31, 94-45.

**2 + 3 = 5 Marks**