Introduction to Financial Derivatives

1. Elucidate the features of financial derivatives.
2. Recall the similarities and differences between cash market and derivative market.
3. Who are the Participants in a Derivative Market? Discuss.
4. Describe the functions of Derivatives Market in India.
5. Compare and contrast between hedging, speculation, and arbitrage.
6. Discuss the factors contributing to the growth of financial derivatives.
7. Examine the history of derivatives markets in India.
8. Draw the structure of regulatory authorities for derivatives markets in India. Discuss.
9. Forwards are the customized contracts; hence the risk is higher to investors. State your comment.
10. Classify derivatives into various types and discuss their features in specific.
11. Write a detailed note on the uses of financial derivatives.
12. Restate the advantages and disadvantages of financial derivatives.

Futures and Forwards

1. Define the concept “futures contracts.” Discuss its features.
2. Distinguish between forwards and futures.
3. Discuss various types of orders in futures.
4. Discuss various types of futures.
5. Elucidate the margin trading system in India.
6. What is margin money? What are the different forms of margin money?
7. Discuss the future markets trading mechanism in India.
8. Discuss the classification of hedging strategies in futures.
9. Describe the role of clearing house in derivatives futures contracts.
10. Consider a three-month futures contract on a particular stock index. Given data, determine future price of the index.
11. Consider a three-month forward contract on a stock. Given data, find forward price under various dividend scenarios.
12. Critically examine the Cash and Carry model for future pricing.

Options

1. Com
2. pare and contrast between futures and options.
3. What is an option? Discuss the various types of options.
4. Distinguish between exchange traded options and over-the-counter options.
5. Draw the structure of the option contract. Discuss.
6. Calculate the pay-off of a long put. Draw the pay-off diagram.
7. What are the various trading strategies involving options? Discuss.
8. Distinguish between a straddle and strangle.
9. What is a covered call? Draw the pay-off diagram with suitable example.
10. Develop the pay-off pattern of call option and put option with an example.
11. Describe the terminology used in options contract.

Option Pricing Models

1. Calculate put option price using put-call parity (with given data).
2. Calculate the value of a call option using Black-Scholes model.
3. Calculate call and put option value using Black-Scholes formula.
4. Find out put option price using put-call parity relation formula.
5. Critically examine Black-Scholes option pricing model.
6. What are the advantages and limitations of Black-Scholes model?
7. Elucidate "Greeks" and their role in understanding options.
8. Calculate option price using Binomial model and replicating portfolio strategy.
9. Critically examine the Binomial Option Pricing model.
10. Enumerate the factors affecting option pricing.
11. What is option value? Elucidate how to calculate intrinsic value.

Swaps

1. Define the concept "SWAP." Discuss the features of swap contracts.
2. Discuss various types of swaps.
3. Describe the Pros and Cons of swap contracts.
4. Recall the terminology used in swaps contracts.
5. Elucidate the trading mechanism of the swap Contracts.
6. Distinguish between interest rate swaps and currency swaps.
7. What is currency swaps? Discuss three types of currency swaps.
8. What is a credit default swap? What are the features of a credit default?
9. Discuss the important economic motives for swap derivatives.
10. Distinguish between equity and commodity swaps.

1.Consider a **three-month futures contract** on a particular **stock index**.

- **Dividend yield:** 3% p.a (continuously compounded)
- **Current value of stock index:** 900
- **Risk-free interest rate:** 8% p.a (continuously compounded)

Determine the **future price** of the index.

2.Consider a **three-month forward contract** on a stock. The underlying stock is currently available at **Rs. 70**.

- **Risk-free rate:** 8% p.a (continuously compounded)

Scenarios:

1. The stock **does not pay a dividend**
2. The stock **pays a dividend of 5%**

3. The stock **pays a dividend of Rs. 1.50**

Find the **forward price** under all three scenarios.

3.Calculate the **pay-off of a long put** and draw the diagram.

Underlying: Reliance stock

Option type: Put

Style: European

Position: Long (Buyer)

Exercise price: Rs. 150

Option premium: Rs. 10 per share

Spot prices at expiration: Rs. 120, 130, 140, 150, 160, 170

4. **Stock price (S):** Rs. 155

   Volatility: 20%

   Risk-free rate: 8% p.a

   Time to expiration: 6 months

   Exercise price (K): Rs. 150

   Call option price: Rs. 12

5.Calculate the **put option price** using **put-call parity**.

Stock price (S): Rs. 90

Exercise price (K): Rs. 80

Risk-free rate (r): 8%

Standard deviation (σ): 23%

Time to expiration (T): 6 months

Option type: Call European (CE)

6.Calculate the **value of the call option** using **Black-Scholes model**.

Current market price (S): Rs. 280

Exercise price (K): Rs. 260

Risk-free rate (r): 8% p.a

Time to expiration (T): 0.6667 years

N(d1): 0.6336

N(d2): 0.4470

Use **Black-Scholes formula** to calculate **call option value**.

7.Type: Call Option

Style: European

Current stock price: Rs. 150

Exercise price: Rs. 160

Up factor: 20%

Down factor: 10%

Time: 1 year

Risk-free rate: 9% p.a

Use **Replicating Portfolio strategy** of the **Binomial Model** to calculate the value.

making?

8.ABC Ltd wishes to borrow ₹10,00,000 for one year. It can borrow at:

- **Fixed rate:** 8%
- **Floating rate:** LIBOR + 1%

XYZ Ltd also wants to borrow ₹10,00,000 for one year, but it has a lower credit rating and can borrow at:

- **Fixed rate:** 12%
- **Floating rate:** LIBOR + 3%
- ABC prefers **floating rate** borrowing.

- XYZ prefers **fixed rate** borrowing.

A **financial institution** plans to arrange a swap and requires a **1% commission spread**.

If the swap is **equally attractive** to ABC and XYZ, **what effective rates of interest will ABC and XYZ end up paying?**

9.Companies A and B face the following interest rates (adjusted for tax impact):

Currency / Type	**Company A**	**Company B**
USD (Floating Rate)	LIBOR + 0.5%	LIBOR + 1.0%
CAD (Fixed Rate)	5.0%	6.5%

- **Company A wants to borrow USD at floating rate**
- **Company B wants to borrow CAD at fixed rate**

A **financial institution** is planning to arrange a **swap** and requires a **50-basis-point spread (0.5%)**.
If the swap is **equally attractive** to A and B, **what rates of interest will A and B end up paying?**