SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES
(AUTONOMOUS)

QUESTION BANK

Year / Semester: II MBA IV Semester **Regulation: R22**

Subject and Code: FINANCIAL DERIVATIVES & 22MBA242A

SYLLABUS

II MBA – Semester - IV

Course Code		L	T	P	C
22MBA242A	**FINANCIAL DERIVATIVES**	3	1	0	4

Course Educational Objectives:

CEO1: To provide knowledge about financial derivatives and the role of derivatives in financial markets.
CEO2: To create awareness about types, trading mechanism, hedging strategies and pricing of forwards.
CEO3: To understand the trading mechanism, hedging strategies and pricing of futures.
CEO4: To explain the mechanics of the options market, various trading strategies and option pricing models.
CEO5: To give an elaborate view on pricing and valuing swaps and management of risk using Swaps.

UNIT - I	Introduction to Derivatives Market	**Lecture Hrs: 10**

Definition and features of derivatives - Development and growth of derivatives market - Types of derivatives – Uses and misuses of derivatives –Structure and functions of derivatives – Participants in derivatives market.

UNIT - II	Forward Market	**Lecture Hrs: 12**

Meaning, features, functions, types of forward contracts - Mechanism of forward trading – Hedging strategies using forwards – Forward pricing – Currency and interest rate forwards.

UNIT - III	Future Market	**Lecture Hrs:12**

Meaning, Features, Functions, Types of Futures Contract — Futures Market Vs. Forward Market - Mechanics of Future Markets - Hedging Strategies using Futures - Futures pricing – Currency and Interest rate futures.

UNIT - IV	Options	**Lecture Hrs:12**

Meaning of Options - Distinguish between Options and Futures - Structure of Options Market - Principles of Option Pricing. Option Pricing Models: The Binomial Model, The Black-Scholes Merton Model - Currency Options.

UNIT - V	Swaps	**Lecture Hrs:12**

Concept, Nature, Evolution, and Features - Interest Rate Swaps - Currency Swaps - Equity Index Swaps - Pricing and Valuing Swaps.

Course Outcomes:

On successful completion of the course the student will be able to,	POs related to COs

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CO1	Understand **the concept of financial derivatives and the role of derivatives in financial markets.**	**PO1, PO8**
CO2	Acquire **analytical skills on trading mechanism, hedging strategies and pricing of forwards.**	**PO2, PO4, PO8**
CO3	Demonstrate **the trading mechanism, hedging strategies and pricing of futures.**	**PO2,PO4, PO8**
CO4	Knowledge **the various option trading strategies and pricing of options using Binomial Model, and Black-Scholes Merton Model.**	**PO2, PO4, PO8**
CO5	Understand **the pricing and valuing swaps and management of risk using swaps.**	**PO2, PO4, PO8**

Text Books:

1. Derivatives and Risk Management, 1/e, Jayanth Rama Varma, TMH.
2. Financial Derivatives, Gupta, PHI. 2008

Reference Books:

1. Fundamentals of Financial Derivatives, Prafulla Kumar Swain, Himalaya Publishing House Pvt. Ltd., India, 2011.
2. Foreign Exchange Markets, Surendra S.Yadav, P.K.Jain, Max Peyrard, Macmillan Publishers India Ltd., 2011.
3. Financial Derivatives, Mishra, Excel, 2009.
4. Risk Management & Derivatives, Stulz, Cengage, 2009.
5. Options, Futures and Other Derivatives, 7/e, John C Hull, Pearson Education, 2009.
6. Derivatives Valuation and Risk Management, David A. Dubofsky, Thomas W Muller, TR, Oxford, 2008.
7. Fundamentals of Futures and Options Market, John C Hull, Pearson Education, 2008.
8. Financial Derivatives: Theory Concepts And Problems, 2/e, S.L. GUPTA, PHI, 2017.
9. Risk Management Insurance and Derivatives G. Koteshwar, Himalaya, 2008.

Online Learning Resources**:**

https://nptel.ac.in/courses/110107128

https://onlinecourses.nptel.ac.in/noc19_mg39/preview

https://nptel.ac.in/courses/110105071

https://learnawesome.org/topics/fb281c2e-51af-4d30-a7f3-2919902458e0-derivatives?item_type=course

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Max Marks: 10

S. No.	CO	Questions	BT
Unit I: Introduction to Derivatives Market			
1	1	Define derivatives and explain their key features.	L2
2	1	Explain the structure and functions of the derivatives market with suitable examples.	L2
3	1	Discuss the development and growth of the derivatives market in India and globally.	L2
4	1	Explain how different types of derivatives (forwards, futures, options, and swaps) can be used for hedging risk with suitable illustrations.	L3
5	1	Assume a company is exposed to foreign exchange risk. Suggest suitable derivative instruments to manage this risk and justify your choice.	L3
6	1	Differentiate between hedgers, speculators, and arbitrageurs in the derivatives market and analyze their roles.	L4
7	1	Examine the structure of the derivatives market and analyze how exchanges and clearing houses reduce counterparty risk.	L4
8	1	Evaluate the uses and misuses of derivatives in financial markets with suitable examples.	L5
9	1	"Derivatives are financial weapons of mass destruction." Critically evaluate this statement with reference to market failures and financial crises.	L5
10	1	Design a risk management strategy for a manufacturing firm using derivative instruments and explain its expected outcomes.	L4

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S. No.	CO	Questions	BT
Unit II: Forward Market			
1	**2**	Define forward contracts and explain their main features.	**L1**
2	**2**	Explain the meaning and functions of forward contracts in financial markets with suitable examples.	**L2**
3	**2**	Describe the mechanism of forward trading and illustrate how a forward contract is executed between two parties.	**L2**
4	**2**	A company expects to receive foreign currency after three months. Demonstrate how it can use a forward contract to hedge exchange rate risk.	**L3**
5	**2**	Explain forward pricing and apply the cost-of-carry model to determine the forward price of a financial asset.	**L3**
6	**2**	Analyze the differences between currency forwards and interest rate forwards with suitable examples.	**L4**
7	**2**	Examine the risks involved in forward contracts and analyze how these risks affect market participants.	**L4**
8	**2**	Evaluate the effectiveness of hedging strategies using forward contracts in managing financial risk.	**L5**
9	**2**	Critically examine the advantages and limitations of forward contracts compared to other derivative instruments.	**L5**
10	**2**	Design a hedging strategy using forward contracts for a firm exposed to both currency and interest rate risk. Explain your approach.	**L5**

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11	**2**	**Hedging Payables with Currency Forward** An Indian importer has to pay **USD 100,000** after 3 months. • Current spot rate = ₹83/USD • 3-month forward rate = ₹84/USD After 3 months, the spot rate turns out to be ₹86/USD. **(a) Calculate payment without hedging.** **(b) Calculate payment with forward hedging.** **(c) Determine gain/loss from hedging.**	**L5**
12	**2**	**Hedging Receivables with Currency Forward** An exporter expects to receive **EUR 50,000** after 6 months. • Spot rate = ₹90/EUR • 6-month forward rate = ₹88/EUR After 6 months, spot rate becomes ₹85/EUR. **Calculate gain/loss from hedging.**	**L5**
13	**2**	**Pricing a Currency Forward** Spot rate = ₹83/USD Indian interest rate = 8% p.a. US interest rate = 4% p.a. Time = 6 months Calculate 6-month forward rate using Interest Rate Parity.	**L5**
14	**2**	**Speculative Position in Forward** A trader enters into a 3-month forward contract to buy USD 200,000 at ₹84/USD. At maturity, spot rate = ₹82/USD. Calculate profit/loss.	**L5**
15	**2**	**Forward Rate Agreement (FRA)** A company enters into a **3×9 FRA** for ₹5 crore at 8% p.a. After 3 months, actual 6-month interest rate = 10%. Calculate settlement amount.	**L5**
16	**2**	**Interest Rate Forward (Forward Rate Calculation)** **Problem 8: Calculating Forward Interest Rate** 1-year rate = 6% 2-year rate = 8% Find 1-year forward rate one year from now.	**L5**

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S. No.	CO	Questions	BT
Unit III: Future Market			
1	3	Define a futures contract and explain its key features and functions.	L1
2	3	Explain the types of futures contracts with suitable examples.	L2
3	3	Describe the mechanics of futures markets, including margin requirements and mark-to-market system.	L2
4	3	Differentiate between futures market and forward market, highlighting their structural and operational differences.	L3
5	3	Illustrate how a firm can use futures contracts to hedge price risk in commodities or financial assets.	L3
6	3	Compute the theoretical futures price using the cost-of-carry model and explain the components involved.	L3
7	3	Analyze hedging strategies using futures and explain the concept of long hedge and short hedge.	L4
8	3	Evaluate the advantages and limitations of futures contracts as risk management tools.	L5
9	3	Critically examine the effectiveness of currency futures and interest rate futures in managing financial risk.	L5
10	3	Design a comprehensive hedging strategy for a company exposed to both currency and interest rate risk using futures contracts.	L6
11	3	An investor enters into a short gold futures contract when the futures price is 60 cent per pound. One contract is for delivery of 60,000 pounds. How much the investor gain or lose if cotton price at the end of the contract is: (a) 58.20 cent per pound (b) 61 30 cent per pound?	L5

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12	**3**	Suppose an investor write a put (selling a put) on stock with a strike price of ` 50 and expiration date in three months. The current price of BILT stock is ` 51. What you committed to yourself? How much could you gain or loss?	**L5**
13	**3**	The current stock price is ` 49 and a three-month call with a stock price 50, losing ` 3.90 (premium amount). You have ` 9800 to invest. Identify two alternative strategies. Briefly outline advantages and disadvantages of each?	**L5**
14	**3**	A speculator based in USA who in February 2003 thinks that pound sterling will strengthen in next two months. How can we use futures contract for speculating? What can be alternatives strategies for speculator? The future price is $1.6420 (per pound).	**L5**
15	**3**	A farmer expects to have ` 50,000 of live hogs to sell in three months. The live hogs futures contract on Multi Commodity Exchange (MCX) is for delivery of ` 25,000 of hogs. How can the farmer use futures for the hedging?	**L5**

S. No.	**CO**	**Questions**	**BT**
Unit IV: Options			
1	**4**	Define an option contract and explain its essential features.	**L1**
2	**4**	Distinguish between options and futures contracts, highlighting their key differences.	**L2**
3	**4**	Explain the structure of the options market and describe the roles of various participants.	**L2**
4	**4**	Illustrate how call and put options can be used for hedging and speculative purposes with suitable examples.	**L3**
5	**4**	Apply the Binomial Option Pricing Model to determine the value of a call option in a one-period framework.	**L3**
6	**4**	Analyze the principles of option pricing and explain the factors affecting option premiums.	**L4**

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7	**4**	Examine the assumptions and limitations of the Black–Scholes–Merton Model in pricing options.	**L4**
8	**4**	Critically evaluate the effectiveness of the Binomial Model and the Black–Scholes–Merton Model in real market conditions.	**L5**
9	**4**	Assess the advantages and limitations of currency options in managing foreign exchange risk.	**L5**
10	**4**	Design a comprehensive risk management strategy using currency options for a firm exposed to exchange rate fluctuations.	**L6**
11	**4**	**Pricing a European Call Option** Current stock price (S_0) = ₹100 Strike price (K) = ₹105 Risk-free rate (r) = 5% Volatility (σ) = 20% Time to maturity (t) = 1 year Standard normal values: $N(d_1) = 0.5420$ $N(d_2) = 0.4602$ Determine: i) Call Option ii) Value Put Price iii) Verifying Put–Call Parity	**L5**
12	**4**	Stock price = ₹200 Strike price = ₹200 r = 6% t = 1 year Case 1: σ = 20% → Call price = ₹16 Case 2: σ = 40% → Call price = ₹32	**L5**

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		Increase in volatility increases option value. This demonstrates that volatility is positively related to option premium.	

S. No.	CO	Questions	BT
Unit V: Swaps			
1	**5**	Define swaps and explain their concept, nature, and key features.	**L1**
2	**5**	Trace the evolution and development of the swaps market in global financial systems.	**L2**
3	**5**	Explain the structure and working mechanism of an interest rate swap with suitable illustration.	**L2**
4	**5**	Demonstrate how an interest rate swap can be used by a firm to convert a fixed-rate loan into a floating-rate loan.	**L3**
5	**5**	Illustrate the working of a currency swap and explain how it helps in managing foreign exchange risk.	**L3**
6	**5**	Analyze the differences between interest rate swaps, currency swaps, and equity index swaps.	**L4**
7	**5**	Examine the structure of an equity index swap and analyze its benefits for portfolio managers.	**L4**
8	**5**	Evaluate the advantages and limitations of swaps as financial risk management instruments.	**L5**
9	**5**	Critically examine the role of swaps in financial crises and assess the associated counterparty risks.	**L5**
10	**5**	Design a swap-based risk management strategy for a multinational company exposed to both interest rate and currency risk. Explain your approach.	**L6**

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11	**5**	The current price of a stock is ` 170 and that the one-period interest rate is 10% with no compounding. After one period, the price of the stock will be either ` 212 or ` 136. Using an arbitrage argument, calculate the price of a European call option which expires in one period with an exercise price of ` 200.	**L5**
12	**5**	A stock is currently trading at ` 50. Over the next two months, the stock will either move up by 25%, or down by 20%. The risk-free rate is 1.00% per month. In exactly one month,the stock will pay a dividend which will be equal to one-tenth (or 10%) of the stock price at that time. If all writes a two-month, two-period option with X = 50, find the price of a two-month American call and a put option.	**L5**
13	**5**	You wish to purchase a call option on a local warehouse having an expiration date of one year and an exercise price of ` 10,00,000. The warehouse owner will not sell you such an option but is willing to sell the warehouse for ` 11, 00,000. The current risk-free interest rate is 9% per year, and insurance on a one-year, ` 10,00,000 loan would be ` 10,000 How would you create a synthetic call option on the warehouse?	**L5**

Note: L1-Remembering, L2-Understanding, L3-Applying, L4-Analyzing, L5-Evaluating, and L6-Creating

References:

1. Derivatives and Risk Management, 1/e, Jayanth Rama Varma, TMH.
2. Financial Derivatives, Gupta, PHI. 2008
3. Fundamentals of Financial Derivatives, Prafulla Kumar Swain, Himalaya Publishing House Pvt. Ltd., India, 2011.
4. Foreign Exchange Markets, Surendra S.Yadav, P.K.Jain, Max Peyrard, Macmillan Publishers India Ltd., 2011.
5. Financial Derivatives, Mishra, Excel, 2009.
6. Risk Management & Derivatives, Stulz, Cengage, 2009.
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8. Derivatives Valuation and Risk Management, David A. Dubofsky, Thomas W Muller, TR, Oxford, 2008.

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11. Risk Management Insurance and Derivatives G. Koteshwar, Himalaya, 2008.