

G.V.M's
G.G.P.R COLLEGE OF COMMERCE & ECONOMICS
Farmagudi, Ponda- Goa.
M.Com. (Semester III) Examination, November 2019
COO 313: Futures and Forward Derivatives

Duration: 3 Hours

Max Marks: 60

Instructions:

- 1. This paper consists of Nine Questions Carrying Equal Marks.**
 - 2. Question No. 1 Consists of 5 Compulsory Questions of 2 Marks Each.**
 - 3. Answer any 5 questions from Question 2, 3, 4, 5, 6, 7, 8 and 9.**
 - 4. Each question carries 10 marks. Figures to the right indicate marks.**
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Q1. Answer the following questions in brief:

(5x2=10)

- a) Define the term derivatives. Explain any ONE feature of derivatives.
- b) Briefly explain the concept of Basis risk.
- c) Value of S&P 500 index= 350
Value of Portfolio= \$3000000
Risk-free interest rate= 15%p.a.
Dividend yield on S&P 500=5%p.a.

Calculate the number of contract (futures) that should be shorted to hedge the portfolio.

- d) What are Spot transactions in foreign exchange?
- e) Define Discount and Premium in exchange rates.

Q2. What are the various types of Derivative products? Explain with the help of a diagram.

(10)

Q3. Explain the regulatory framework of derivatives trading in India.

(10)

Q4. Answer the following:

- a) What is Hedging? Discuss Long Hedge and Short Hedge with the help of Illustrations. **(5)**
- b) Ms. Ashwini has bought 3000 shares of HUL at ₹7,550 and wants to keep the investment for another three months but the market is expected to fall in the near future due to economic recession in the country. Hence, she wants to hedge the position by shorting three months Nifty futures which is currently available at 9500 with lot size of 75 points. The standard deviation of change in the prices of HUL and Nifty index futures over three-month period is 35 and 45 respectively. The co-efficient correlation between the three months change in the prices of HUL and Nifty futures is 0.90. Find out the minimum variance hedge ratio and the number of Nifty futures contracts is required to be shorted to hedge her position. **(5)**

Q5. Find out the theoretical price of a stock maturing in three months from now, which is currently trading at ₹ 250. The annual risk-free rate of return continuously compounded is 9%.

- a) What would an arbitrageur do if the three months future contract on this stock is trading at ₹260?
 b) Does it make any difference if the three-month future contract on this stock is trading at ₹220?
 Calculate the Arbitrage gain/loss in both the situations. **(10)**

Q6. Explain TWO types of Index Construction Methods. **(10)**

Q7. Answer the following:

- a) An investor has a portfolio consisting of shares given as follows:

	No. of Shares	Share Price (£)	Share Beta (β)
Bank of London	300	200	0.9
London Motors	500	150	1.5
Numeral Manufacturing	100	300	1.3
Chelsea Stores	200	250	0.8

On 15th March and April, FTSE Futures price is 3000. How can an investor hedge the portfolio with futures? **(5)**

- b) A fund manager anticipates the receipt of \$500000 on February 1st and intends to use it to buy a balanced portfolio of UK equities. He fears, one month earlier that stock price will rise before the money is received. Current FTSE-100 futures contract is at a price of 1100. The new FTSE-100 index is at 1150. Show how the index futures can be used to hedge the price risk. **(5)**

Q8. Answer the following:

- a) HDFC Bank Ltd quotes on 24/10/2019 Spot rate as ₹70.1845/ ₹72.5430 per \$.

What is the bid price, ask price and spread in this case? **(2)**

- b) An Indian importer needs to pay 1,000,000 SGD (Singapore Dollars) to a party in Singapore after 3 months and requests his bank SBI for a forward contract. The prevailing base rates in the inter-bank market are as follows:

Spot rate: ₹25.6135/₹ 26.2180 per SGD

3 months forward margin: 140/90 (at a discount).

Assuming the bank levies an exchange margin of 0.075%.

What is the applicable Forward rate? **(4)**

c) On 15/10/2019 two forex dealers gave following quotes to an Investor.

Forex Dealers	Willing to buy 1US\$ at	Willing to sell 1US\$ at
Dealer A in New Delhi	₹ 71	₹72
Dealer B in Mumbai	₹73	₹74

Does the investor have an opportunity for arbitrage? If yes, what is the gain per US\$? (2)

d) India has inflation rate=7% p.a. and Europe has inflation rate = 5% p.a., if the spot rate is 1 euro=₹82.30. What would be the value of 1 Euro in one year as per the purchasing power parity theory? (2)

Q9. Answer the following:

a) Suppose on 30th September 2019 the following interest rates and prices existed in forex markets.

Spot exchange rate	₹/ US \$	70.42
Future exchange rate	₹/US \$	71.58
6 months Indian interest rate	On rupees	5% p.a.
6 months U.S. interest rate	On US dollars	6% p.a.

Show if there is any arbitrage opportunity and also compute the profit under arbitrage per US\$. (5)

b) An Indian exporter on 28th September 2018 signs a contract to export shirts to a US firm. He will get US\$ 50,000 on 28th December 2018. But the exporter expects US\$ to depreciate by December 2018 so he enters into a futures contract on 28th September 2018 at 1US\$= ₹75.5600. Calculate the result of this hedging strategy if US\$ appreciates to 75.89 and alternatively if US\$ depreciates to 75.23 in December 2018. (5)
