DELHI SCHOOL OF BUSINESS
By Vivekananda Institute of Professional Studies - TC

Delhi School of Business
PGDM Program
END-TERM EXAMINATION, OCTOBER 2024
TERM – IV (Batch: 2023-25)

Course Name	International Business	Course Code	IB
Duration	3 Hours (180 Minutes)	Max. Marks	60

Instructions

More credit will be given for precise answers

Each answer should start in a separate page

Questions 1 to 5: Limit answer to a page

Questions 1 to 5: Has to be explained using a case discussed in the course (Concept-2+Case-4).

1. Differentiate between Internationalization and Globalization? **(2+4; CO1 & CO2)**
2. Explain national competitiveness concept. **(2+4; CO1 & CO2)**
3. Outline the facilitative and prohibitive role of the state in fostering trade. **(2+4; CO1 & CO2)**
4. Explain the various risks faced by global firm (2+4; CO1 & CO2)
5. Structure is based on the strategy of a firm. (2+4; CO1 & CO2)
6. Give the rationale for appropriate agreements **based on any three principles of the trading** system facilitated by WTO. **(8; CO2)**
7. **With the help the excerpt of the case (Exit of USA from TPP), answer the following questions?**

Excerpt from TPP

Prestage Farms

On a cloud-swept landscape dotted with grain elevators, a meat producer called Prestage Farms, is building a 700,000-square-foot pork processing plant. "I'm scared to death," said Ron Prestage, whose North Carolina-based family pork and poultry business made its huge investment in the plant near Eagle Grove in part to reap expected gains from the TPP. "I don't

no MFN status
and no discrimination [illegible]

guess I've gone beyond the point of no return on the new plant, but we did already start digging our wells and started moving dirt." He and other agricultural businesspeople and workers have reason for concern.

The gleaming new factory was both a great hope for Wright County, which voted by a 2-1 margin for Donald Trump, and the victim of one of Trump's first policy moves, his decision to pull out of the Trans-Pacific Partnership *(TPP-11, it now consists of Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam. United States moved out of TPP from 23 January, 2017).*

New TPP members

- Signed 27 fresh trade deals among themselves and with EU and China
- Japan signing new and quick agricultural trade deals with EU
- Australia renewed interest in Japan food market

USA

- Lost market share of both pork and wine in Japan. Expected to lose further.
- Trying out ~~new bilateral deals successful in~~ striking 7 deals
- Was bit a skeptical that TPP members were not eager to sign deals, *including Japan.*

isko ulta kar dia
meine ki skeptical tha toh kuch problem hoga.

Wright County Predicament

Prestage Farms went ahead with the investment depending largely on export opportunities. More than 26 percent of the pork produced in the U.S. in 2016 was exported to foreign markets. And more than $1.5 billion of the nearly $6 billion in U.S. pork exports in 2016 headed for Japan. Most in the industry expected a boom coming from exports as a result of TPP, with continued strong sales made possible by NAFTA. Vietnam, another growing market where U.S. producers were set to expand sales of organ meat and other items not easily sold domestically, was prepared to eliminate its tariffs altogether under TPP. Now, the tariffs remain and Prestage—and all of Eagle Grove—are holding their breath. Prestage said his company's plant should be operational by the fall of 2018, but any move to add a second shift or expand production will largely depend on new trade opportunities.

Additional Data: In 2016, the United States and Japan had $195.5 billion in trade with United States exporting $63.3 billion and rest is import from Japan.

1. Any specific reasons that forced ~~new~~ current TPP members to explore the new deals both within and outside the regional cooperation? State your arguments. **(3; CO3)**

II. Was the decision of President Trump to opt out of TPP correct? State your arguments. (4; CO3)

III. Suppose you are a consultant appointed to redeem the problems faced by Prestage farms. What will be your suggestions? (3, CO3)

Read the following case and answer the questions at the end

Philips Global Restructuring

Established in Eindhoven, The Netherlands, Philips NV is one of the oldest multinational corporations. Philips began making lighting products and, over time, diversified into a range of businesses that included domestic appliances, consumer electronics and health care products. From its inception, some of the Dutch small companies created pressure on Philips to look for foreign markets for growth, which is a common phenomenon for most of the European firms, a characteristic observed in born global firms.

During the world war II, Germany occupied Netherlands and it resulted in greater autonomy for company's organization in Australia, Brazil, Canada, the United Kingdom and the United states. After the war, the structure based on strong national organization remained in place. Each national organization was, in essence, a self-contained entity that was responsible for its own production, marketing, and sales.

Most of the R&D activities, however, were centralized at Philips headquarters at Eindhoven, while a decentralized national structure of several products were also created simultaneously. Based in Eindhoven, the product division developed technologies and products, which were then sold by different national organizations. During this period, the career track of most senior managers at Philips involved significant postings in various national organization.

For several decades the national organization worked well. It allowed Philips to customize their product offerings, sales and marketing efforts to the conditions that existed in different national markets. The top management at the Headquarters soon realized the duplication of activities around the word, which intrinsically created a high-cost structure. When the trade barriers were high, these did not matter so much, but the significance of its effect became important when the trade barriers were diminishing, as per the global trend. Competition in each national market was becoming intense when competitors such Sony and Matsushita from Japan, General Electric from United States and Samsung from South Korea made a foray in these markets. These firms increased their market share by increasingly serving global markets through centralized production facilities resulting in higher scale economies and lower costs.

Philips' response was to try to tilt the balance of power in its structure away from national organizations and toward products division. International production centres were established under the direction of product division. The national organization, however, remained responsible for local marketing and sales, and had control over some local production facilities. The problem of retaining autonomy in the national structure remained as senior managers tried to protect their nationalist identities and autonomy.

Despite several re-organization efforts, the national organizations had a strong influence on Philips global operation and the organization structure was compared to 'plate of spaghetti' by former Philips CEO, Cor Boonstra around early 2000s. The company then had 350 subsidiaries around the world with resulting in duplication of time and functional efforts. He then brought about an organizational change and replaced the existing 21 product division to only 7 global business divisions, making them responsible for product development production, and marketing. The head of these division reported to the CEO while national organization reported to the divisions. The national organizations remained responsible for sales and marketing and thereby losing their sway on the company.

Phillips, however, continued to underperform in its global rivalry. In 2008, Gerard Kleisterice, who succeeded Cor Boonstra, reorganized Philips yet again, to only three global divisions, namely electronics, healthcare and lighting. These are also the three divisions passed on the Frans van Houten, who became CEO in 2011. Under his stewardship, Philips aimed for making this world healthier and sustainable place to dwell and to improve lives of 3 billion people a year by 2025 in a world population of 7.4 billion.

To achieve this aforesaid goal, the slogan for healthcare division was coined as 'creating the future of healthcare", for lighting division it was "enhancing lighting with lives' and for Consumer Lifestyle division it was 'helping people achieve healthier and better life". These three divisions were responsible for product strategies, global marketing, supply chain and deciding on competitive production facilities. These divisions also were responsible for some of the sales responsibilities such as dealing with global retail chains such as Walmart, Tesco and Carrefour. To accommodate national differences, however, some sales and marketing activities remained located at the national organizations.

Q2-A What are the phases of restructuring in Philips and state the type of organizational structure Phillips adopted in each phase

Q2-B What compelled the CEOs after 2000s to undertake such changes in structure (outline the reasons for each phase briefly).

Q2-C What was shift in strategy in Philips from 2000 to its current operation. Do you think it will be effective in the near future.

(4+4+4=12; CO3)

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PGDM / PGDM (FINTECH) Program
TRIMESTER - IV (Batch: 2023-25)
END-TERM EXAMINATION, SEPTEMBER 2024

Course Name	Financial Management – 2	Course Code	
Duration	Three Hours	Max. Marks	60

Instructions:

1. **Present all formulas and calculations clearly for each problem.**
2. **Mention any assumptions made and provide a brief explanation to support your decisions.**
3. **Use relevant financial management concepts and provide both quantitative and qualitative reasoning for your answers.**

Q.1 A manufacturing company is considering investing in new machinery that costs Rs. 2 million. The expected cash inflows are Rs. 500,000 annually for the next 6 years. However, the company has the option to delay the investment by one year, during which time the machinery price may drop by 10%, but the annual cash inflows will also reduce to Rs. 450,000. The company's cost of capital is 10%.

Questions:

(a) Calculate the NPV and IRR of the project if the company invests today.

(b) If the company delays the investment for one year and the machinery price drops by 10%, what would be the new NPV? Should the company invest now or wait?

(10 Marks) CO 1&2

Q.2 XYZ Inc. is a large manufacturing company operating in the heavy machinery sector. The company's current financials include an EBITDA of Rs. 150 million, with net debt amounting to Rs. 500 million. Currently, XYZ trades at an EV/EBITDA ratio of 9 times, while the average EV/EBITDA ratio for its peers in the industry is 7 times.

XYZ's management is exploring options to grow the business and expand its market share, including taking on an additional Rs. 100 million in debt to finance a new acquisition. The acquisition is expected to increase EBITDA by 10% next year. However, analysts are concerned about XYZ's debt levels and how this acquisition may affect its valuation and financial ratios.

Analysts are also forecasting EBITDA growth for XYZ of 5% annually over the next two years without the acquisition, and 10% growth with the acquisition. Additionally, the company has a weighted average cost of capital (WACC) of 10%.

Questions:

(a) Using the peer group's EV/EBITDA multiple of 7 times, calculate the appropriate enterprise value (EV) for XYZ Inc. How does this differ from XYZ's current EV, based on its own multiple of 9 times?

(b) XYZ has 20 million shares outstanding. Calculate the company's current equity value using the EV/EBITDA multiple of its peers (7 times), and compare it to the equity value calculated using XYZ's own multiple of 9 times. How do these values differ, and what could explain the difference in multiples? **(10 Marks) CO 3**

Q.3 A pension fund is considering purchasing a 10-year bond with a face value of Rs. 1,000 and a coupon rate of 5% paid annually. The market interest rate is currently 6%.

Questions:

- (a) Calculate the price of the bond.
- (b) Compute the bond's duration. If interest rates increase by 1%, how much will the bond's price change based on duration? Should the pension fund invest in this bond given the potential interest rate increase? **(10 Marks) CO 2&3**

Q.4 A tech company is evaluating two projects: Project A requires an initial investment of Rs. 15 million and is expected to generate Rs. 5 million annually for 5 years. Project B requires an initial investment of Rs. 12 million and is expected to generate Rs. 3 million annually for 8 years. The CFO favours Project B because it has longer cash flows, but the CEO prefers Project A due to its higher annual returns.

Questions:

(a) Calculate the NPV of both projects using a discount rate of 10%. Which project should the company choose based on financial metrics alone?

(b) What behavioural biases (e.g., recency bias, overconfidence) might be influencing the CEO and CFO's decision-making? How can the company structure its decision-making process to mitigate these biases? **(10 Marks) CO 2,3&4**

Q.5 (a) A utility company is trading at Rs. 80 per share, with an expected annual dividend of Rs. 4 per share. The dividends are expected to grow at a constant rate of 3% per year. The company's cost of equity is 8%. Using the Dividend Discount Model, calculate the intrinsic value of the stock. Is the stock currently undervalued or overvalued based on its trading price of Rs. 80? If market conditions change and the growth rate of dividends drops to 2%, recalculate the stock's intrinsic value. How should the company adjust its dividend policy in response to this change?

Q5 (b) A private equity firm is evaluating a leveraged buyout (LBO) of a retail company. The expected free cash flows to equity over the next 5 years are as follows: Year 1: Rs. 4 million, Year 2: Rs. 5 million, Year 3: Rs. 6 million, Year 4: Rs. 7 million, Year 5: Rs. 8 million. The firm plans to sell the company in Year 5 for Rs. 100 million. The cost of equity is 10%, and the company has Rs. 20 million in debt. Calculate the value of the retail company using the FCFE method, considering the debt level and projected cash flows. How would the valuation change if the firm adds an additional Rs. 10 million in debt to finance the acquisition?

(20 Marks) CO 3&4

DELHI SCHOOL OF BUSINESS
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PGDM / PGDM (FINTECH) Program
TRIMESTER - IV (Batch: 2023-25)
END-TERM EXAMINATION, SEPTEMBER 2024

Course Name	FUNDAMENTALS OF INSURTECH AND REGTECH	Course Code	
Duration	Three Hours	Max. Marks	60

Instructions:

1. **All the questions are compulsory. Only choice is given in Question 2.**
2. **Start each answer on a fresh page and number your answers.**
3. **Answer all parts of the same Question together and in sequence.**

Q.1 Consider a traditional insurance company looking to overhaul its business as an Insurtech firm, help that company to undergo the transition by preparing a note on the advanced trends related to a) Predictive Analytics b) Artificial Intelligence c) Internet of Things and d) Chatbots in case of Insurtech. **(12 Marks) CO1**

Q.2 a) A financial firm is looking to implement new age Regulation through Digitization; help them understand the utility of this by mentioning the benefits of Digitization of Regulation.

b) Now that the firm has understood the benefits of Digitization but they can make the process of Digitization a lot better by understanding the challenges; help the firm by listing out the challenges in Digitization of Regulation.

c) Effective implementation of Digitization of Regulation will not be successful unless there are proper strategies in place; formulate the strategies for successful implementation of Digitization of Regulation.

OR

In accordance with IRDA, an Insurtech firm wishes to implement new age digitization strategies and an external consultant is appointed to create strategies for the same; prepare the relevant digital transformation strategies in order to aid the consultant with the inclusion of relevant examples to explain the strategies in detail. **(12 Marks) CO2**

Q.3 An entrepreneur wants to build an Insurtech startup but before starting the venture he wishes to understand the business model of Insurance Aggregators, P2P Insurance, Usage-Based
Policy Bazaar Toffee Digi

Insurance and Blockchain-Based Insurance; help him understand the business model of each in detail with examples. ICICI

(12 Marks) CO5

Q.4 An Insurtech firm wishes to conduct an analysis in order to decide whether AI should be implemented in the organization or not; help them make the decision by elaborating on the utility of AI in case of a) Underwriting b) Claims Processing c) Fraud Detection and d) Policy Pricing in Insurtech. By data

(12 Marks) CO3 & CO4

Q.5 A Regtech entity wishes to determine whether AI should be implemented across the various divisions in their organization or not; aid them in the decision making by commenting on the utility of AI in a) Anti-Money Laundering b) Know Your Customer c) Compliance Automation and d) Data Accuracy in case of Regtech.

(12 Marks) CO3 & CO4

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PGDM / PGDM (FINTECH) Program
TRIMESTER - IV (Batch: 2023-25)
END-TERM EXAMINATION, SEPTEMBER 2024

Course Name	AI For Managers	Course Code	
Duration	Three Hours	Max. Marks	60

Instructions:

1. All the questions are compulsory
2. **Read all questions carefully:** Ensure that you fully understand each question before attempting to answer. Provide clear and concise responses, adhering to the specific instructions given for each section.
3. **No unauthorized materials:** The use of books, notes, or electronic devices (unless explicitly permitted) is prohibited.

Q.1 A researcher collected data on the number of hours 50 college students spent studying per week during a semester. The data summary is as follows:

- Mean: 15.6 hours
- Median: 14.5 hours
- Mode: 12 hours
- Standard deviation: 4.2 hours
- First quartile (Q1): 12 hours
- Third quartile (Q3): 18 hours
- Minimum: 6 hours
- Maximum: 28 hours

a) Calculate the interquartile range (IQR).

b) Determine if there are any potential outliers in the dataset using the 1.5 × IQR rule. If so, what are the lower and upper bounds for outliers?

c) Based on the given information, what can you infer about the shape of the distribution? Explain your reasoning.

d) Calculate the skewness and interpret its meaning in the context of this dataset.

e) If you were to represent this data using a box plot, what would be the five key values you'd need to construct it?

(15 Marks) CO1

Q.2 Write a Pandas pipeline that performs the following operations:

a) Reads data from multiple CSV files (provide Python code)

b) Concatenates them into a single Data Frame (provide Python code)

c) Pivots the data using a crosstab between two categorical columns (provide Python code)

d) Converts object data type into numerical data type (provide Python code)

(10 Marks) CO3

Q.3 A data scientist is analysing a dataset containing information about used cars. The dataset includes the following variables:

- Price (in thousands of dollars)
- Age (in years)
- Mileage (in thousands of miles)
- Fuel Type (Petrol, Diesel, Electric)
- Transmission (Automatic, Manual)
- Brand (various car manufacturers)

The data scientist has performed some initial EDA and obtained the following insights:

1. The dataset contains 5000 records with no missing values.
2. Price ranges from \$5,000 to \$150,000 with a mean of \$25,000 and a median of \$22,000.
3. Age ranges from 0 to 20 years with a mean of 5 years.
4. Mileage ranges from 0 to 200,000 miles with a mean of 50,000 miles.
5. 60% of the cars are Petrol, 35% are Diesel, and 5% are Electric.
6. 70% of the cars have Automatic transmission, while 30% have Manual.
7. There are 20 different car brands in the dataset.

Based on this information, answer the following questions:

a) What visualizations would you recommend to explore the relationship between Price and Age? Explain why these visualizations are appropriate.

b) How would you investigate if there's a significant difference in Price between Fuel Types? Describe the statistical test or visualization you would use and why.

c) The data scientist suspects that Mileage might have some outliers. What method would you use to detect outliers in the Mileage variable, and how would you visualize them?

d) To understand the distribution of Price across different Brands, what type of plot would you suggest? How could this plot help in identifying any patterns or anomalies?

e) The data scientist wants to explore if there's a relationship between Transmission type and Age. What visualization technique would you recommend, and what insights might you expect to gain from this analysis?

f) Based on the summary statistics provided for Price, what can you infer about its distribution? How would you verify this inference?

g) Suggest two additional analyses or visualizations that could provide valuable insights into this dataset, explaining your reasoning for each suggestion. **(15 Marks) CO3**

Q.4 Compare and contrast the use of accuracy, precision, recall in evaluating classification models. Provide examples of scenarios where each metric would be most appropriate as the primary evaluation criterion. **(10 Marks) CO2**

Q.5 How does a machine learning pipeline process data from collection to build, and can you provide a specific example of sampled data used in a regression task, such as predicting automobile prices?

Sampled Data Example: In the context of a regression task, a sample dataset might include features such as:

- Make: The manufacturer of the car (e.g., Ford, Toyota)
- Model: The specific model of the car (e.g., Focus, Camry)
- Year: The year of manufacture
- Mileage: The total miles driven

- Condition: The condition of the car (e.g., new, used)
- Price: The target variable representing the selling price of the car

For instance, a sample entry in the dataset could look like this:

Make	Model	Year	Mileage	Condition	Price
Ford	Focus	2018	25000	Used	15000
Toyota	Camry	2020	15000	New	24000
Honda	Civic	2019	30000	Used	18000

In a machine learning pipeline, this data would be collected, pre-processed (e.g., handling missing values, encoding categorical variables, and outliers), and then used to train a regression model that predicts car prices based on the provided features with evaluation parameters.

(10 Marks) CO4 & CO5

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PGDM / PGDM (FINTECH) Program
TRIMESTER - IV (Batch: 2023-25)
END-TERM EXAMINATION, SEPTEMBER 2024

Course Name	Risk Management	Course Code	
Duration	Three Hours	Max. Marks	60

Instructions:

1. Only scientific calculators are allowed.

2. All questions are mandatory. Please refer to the instructions provided for Questions 1 and 4, as they include options.

Q.1. Use your analytical and conceptual knowledge while answering the questions. Answer <u>any three questions</u>. [each question carries five marks] **CO1 & CO4**

a) **Scenario:** An agricultural producer is considering locking in the price of wheat for future delivery, while a financial institution is contemplating a contract to hedge against equity investment. The producer is considering a forward contract, whereas the financial institution is looking at a futures contract.
Question: Compare and contrast the use of futures and forwards in these scenarios. Discuss the differences in contract specifications, liquidity, counterparty risk, and market mechanisms. Analyze how these differences might influence the choice of contract for each party involved

b) **Scenario:** An investor believes that the stock price of a major energy company will rise significantly over the next six months. Another investor anticipates a decline in the same stock price over the same period. Each investor is considering buying either call or put options.
Question: Differentiate between call and put options and analyze which type of option each investor should choose based on their expectations. Discuss the potential payoff structures, strategic applications, and risk profiles of the options they are considering.

c) **Scenario:** A trader is assessing three options for a stock that is currently trading at ₹1,000. The available options have strike prices of ₹900, ₹1,000, and ₹1,100.
Question: Identify and explain the moneyness of each option. Discuss how the moneyness affects the pricing, potential profitability, and strategic use of these options in various market conditions.

d) **Scenario:** An analyst is reviewing a futures contract on NIFTY50 index. The contract has shown high trading volume over the past week, but the open interest has remained relatively stable.
Question: Distinguish between open interest and trading volume in the context of this futures contract. Analyse what the high trading volume and stable open interest might indicate about market activity, liquidity, and the potential implications for traders.

Q.2 This question has two parts. Part (a) carries 9 marks and part (b) carries 6 marks.

CO1

a) A commodity trader has access of physical market to purchase gold at spot rates and also trades gold futures on the exchange. Recently, he noticed that the spot price of gold is ₹72,505 per 10 grams in the physical market. At the same time, he found that the MCX India exchange lists gold futures for next month at ₹76,015 per 10 grams. As a seasoned trader, he senses a pricing discrepancy but isn't sure how to capitalize on it. He reaches out for your guidance on how to proceed. The futures contract expires in 45 days, and he has ₹80 lakh in a fixed deposit, which earns him 6%pa, that he's willing to break if there's a more lucrative opportunity.

i. Identify correct strategy
ii. Identify what will be probable gain or loss from the strategy?
iii. How many contracts or quantity he must take?
iv. Compare two situations, after executing the strategy what if in *situation 1* Gold price increases by 20% at the date of expiry and situation 2 *Gold prices* reduces by 20% at the date of expiry.

b. As a student of Risk Management explain:

i. Implied Volatility
ii. Cost of Carry
iii. Arbitrage

Q.3 Tashi is a portfolio manager where she invests in a portfolio of the following stocks on 20th Jan 2022. Invested amount and stock beta on investment date is given in the below table.

Stock Name	Amount	Beta
ASHOKLEY	₹ 1,05,00,000	1.35
HDFC	₹ 1,08,00,000	1.05
ICICIBANK	₹ 70,00,000	1.25
NHPC	₹ 2,00,00,000	0.90
PIDILITEIND	₹ 1,00,00,000	0.98
MARUTI	₹ 1,0500,000	1.13

On, 1st April 2024 she observes a general election in the country where she believes it will be uncertain times for next three months. She decides a good approach should be to hedge her portfolio. She identifies NIFTY50 is trading at 22,460 and its June 24 Futures is at ₹ 22,585, May 24 Futures is trading at ₹ 22,543 and April is trading at ₹22,495. The lot size is 25 for NIFTY50 derivatives. She checks her portfolio and identifies the stocks increased by the following rates and its current beta is

Stock Name	Increase (from investment date)	Current Beta
ASHOKLEY	35.70%	1.3
HDFC	19.30%	1.02
ICICIBANK	26.50%	1.15
NHPC	168.25%	1.08
PIDILITEIND	43.75%	1.03
MARUTI	27.25%	1.11

She checks the Option chain for NIFTY 50 June 24, and finds the following information

Expiry – June 24		
Call Premium	Strike	Put Premium
₹ 910	22000	₹ 215
₹ 530	22500	₹ 390
₹ 280	23000	₹ 655

Now she wants you as an expert need to guide her through the nuances of the hedging process. She has the following questions, which you are expected to answer:

a) Will the portfolio beta change from investment date and hedging date. If yes than what are the portfolio beta for both the dates. **[4 marks]**

b) How she can use futures as a hedging tool, **[8 marks]**
   i. Which contract must she select?
   ii. What should be her cover value
   iii. What will happen with her portfolio if NIFTY by the end of June approaches to ₹25,000, ₹22,000, ₹18,000. Create scenarios for each case and analyse its results.

c) Can Options be used instead of futures if yes than suggest which type of option and what strike would you suggest. Give rationale to your answer **[3 marks]** **CO2& CO3**

Q.4 Answer any <u>two questions</u> out of the three. [each question carries 7.5 marks] **CO4**

a) Reliance spot is trading at ₹2,936.50 and futures for near month is trading at ₹2,943.65. Call premium for ₹2,940 strikes trades at ₹41.10 and put premium is ₹26.20. Dhriti a trader wants to create synthetics for the following strategies. As an expert help her to create synthetics for:

- Long Call

- Short Call
- Long Put
- Short Put
- Short Stock

b) Observe the following data.

Underlying Price	₹ 1,248.00	
Strike	₹ 1,250.00	
Expiry Date	31-Oct-24	
Annualised Volatility	24.43%	per annum
DTE	47.00	days
Interest Rate	5%	
Dividend Yield	0%	

	Call Option	Put Option
Theoretical Premium	42.79	37.41
Delta	0.539	-0.461
Theta	-0.504	-0.347
Vega	1.636	1.636

- Explain Delta Theta and Vega
- Refer to data in above table and interpret what does delta, theta and Vega values mean for call option and put option.

c) Following table shows details of a stock and its Futures for near, next and far month. Identify and calculate all the possible spread deals and identify the strategies for them. Rate of interest is 5%.

	Spot	Oct Fut	Nov Fut	Dec Fut
Days to Expire →		20	50	80
CMP →	₹1,725	₹1,730	₹1,732	₹1,746

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PGDM / PGDM (FINTECH) Program
TRIMESTER - IV (Batch: 2023-25)
END-TERM EXAMINATION, SEPTEMBER 2024

Course Name	**Investment Analysis & Portfolio Management**	**Course Code**	
Duration	**Three Hours**	**Max. Marks**	**60**

Instructions:

1. **Attempt any 6 questions, All Questions carry equal marks.**
2. **Present all formulas and calculations clearly for each problem.**
3. **Mention any assumption made and provide a brief explanation to support your decisions.**
4. **Use all the relevant concepts of Investment Analysis & Portfolio Management and provide both quantitative and qualitative reasoning for your answers.**

Q.1 Assess how changes in economic indicators such as interest rates, inflation, and GDP growth can influence stock market performance. For instance, if the central bank increases interest rates by 0.5% and inflation is projected to rise to 4%, how might these changes impact the stock prices of growth-oriented versus value-oriented companies? Provide a detailed explanation based on historical trends and economic theory. **(10 Marks) CO1**

Q.2 a) Company ABC has earnings per share (EPS) of INR 25. The stock is currently trading at INR 500 per share. Calculate the P/E ratio of the stock. If the average P/E ratio of the industry is 20, is ABC overvalued or undervalued?

b) You have invested in three stocks as follows:

- Stock A: INR 50,000 with an expected return of 10%
- Stock B: INR 30,000 with an expected return of 15%
- Stock C: INR 20,000 with an expected return of 8%

Calculate the expected return of your portfolio. Also differentiate between various theories related to portfolio management. **(10 Marks) CO2 & CO4**

Q.3 Analyse the advantages and disadvantages of callable and convertible bonds from both an investors and issuer's perspective. How does the presence of call options affect the pricing and yield of callable bonds? What are the potential benefits and risks associated with convertible bonds? How does investing in bonds issued in a foreign currency introduce additional risks and opportunities for investors? **(10 Marks) CO2**

Q.4 How would you use beta to construct a diversified portfolio? Discuss the implications of including high-beta and low-beta stocks in a portfolio. How does the overall beta of a portfolio affect its risk and return profile? Provide an example of how you might balance these stocks to achieve a desired level of risk. **(10 Marks) CO3**

Q.5 A portfolio consists of 5 stocks as detailed below:

Stock	Market Value (INR)	Stock Beta
A	5,000,000	1.4
B	12,000,000	1.2
C	10,000,000	0.9
D	15,000,000	1.3
E	8,000,000	0.85

Calculate the weighted Beta of the portfolio. **(10 Marks) CO3**

Q.6 There is an active treasury in a commodity producing firm. They want to tap the direction of the commodity. The head of commodity desk is expecting a sideways movement in Crude Oil market and thinks of preparing a strategy which makes money when the oil prices remain between approximately $60 to $70 broadly. Prepare an Options Strategy for the same and make a payoff matrix and diagram to prove your case. **(10 Marks) CO3**

Q.7 Case Study: ABC Tech Inc.

Instructions:

- Your answer should be well-structured and should include quantitative analysis where appropriate.
- Support your arguments with relevant financial concepts and theories related to equity and debt market analysis.

Background: ABC Tech Inc. is a leading software development company that specializes in providing cloud-based solutions for businesses. The company has shown steady growth over the past five years, but recent market trends and economic indicators have raised questions about its future performance.

Financial Overview: For the fiscal year ending December 31, 2023, ABC Tech reported the following financials:

- **Revenue:** $150 million (up 15% from 2022)
- **Net Income:** $30 million (up 10% from 2022)
- **Total Assets:** $250 million

- **Total Liabilities:** $100 million
- **Equity:** $150 million
- **Current Ratio:** 2.5
- **Debt-to-Equity Ratio:** 0.67

Market Conditions:

1. **Economic Indicators:**
   - The unemployment rate is at 4.5%, indicating a stable labor market.
   - Inflation has stabilized at 3.0%.
   - Interest rates have increased to 5.0%, affecting borrowing costs.
2. **Industry Trends:**
   - Increasing demand for cloud solutions due to digital transformation.
   - Emerging competitors entering the market, driving innovation and pricing pressures.
3. **Stock Performance:**
   - Current Stock Price: $50 per share
   - P/E Ratio: 20
   - Dividend Yield: 1.5%
   - The company plans to increase its dividend payout by 10% next year.

Task: As an analyst, you are tasked with providing a comprehensive analysis of ABC Tech Inc. to assess its investment potential in both equity and debt markets.

Question:

Based on the provided information, answer the following:

1. **Financial Statement Analysis:**
   - Evaluate ABC Tech Inc.'s financial health using key ratios such as profitability, liquidity, and solvency. Discuss any potential concerns or strengths.
2. **Economic Analysis:**
   - Analyze how current economic conditions (unemployment, inflation, interest rates) may impact ABC Tech's business operations and stock performance.
3. **Market Analysis:**

- Considering industry trends and competitive pressures, assess the growth potential for ABC Tech. How might these factors influence investor sentiment regarding the company's equity?

4. **Investment Recommendation:**
   - Based on your analysis, provide a recommendation for potential investors regarding ABC Tech's stock. Justify your recommendation with evidence from your financial and economic analysis. **(10 Marks) CO4**

DELHI SCHOOL OF BUSINESS

By Vivekananda Institute of Professional Studies - TC

PGDM / PGDM (FINTECH) Program
TRIMESTER - IV (Batch: 2023-25)
END-TERM EXAMINATION, SEPTEMBER 2024

Course Name	FINTECH IN BANKING AND FINANCE	Course Code	
Duration	Three Hours	Max. Marks	60

Instructions:

1. **All the questions are compulsory.**
2. **Start each answer on a fresh page and number your answers.**
3. **Answer all parts of the same Question together and in sequence.**

Q.1 Consider a scenario where an individual has to apply different digital payment techniques such as UPI, NEFT etc. depending upon the utility of each technique. So based on the features, detail the utility of **a)** UPI, **b)** NEFT, **c)** RTGS, and **d)** IMPS such that it becomes evident under what circumstances a particular payment technique is relevant. **(12 Marks) CO1**

Q.2 a) Consider an individual to be looking to avail a loan, help him understand the difference between Secured Loans and Unsecured Loans with an example for each of them.

b) Further the individual wishes to classify himself as to whether he is a Traditional Lender or a Digital Lender, mention the basis on which the differentiation between the two can be undertaken.

c) In case the individual decides to explore the alternative credit avenues then mention what could be the components of the alternative credit decision model which could help him in making that decision. **(12 Marks) CO2**

Q.3 a) Consider a merchant who is advised by his friend to avail a POS terminal in his outlet but the merchant is concerned whether this will help in bringing any innovation to his outlet. Help him understand the innovation elements in case of POS by mentioning them in detail.

b) Now the merchant is confused which POS would be ideal for his outlet so help him make the decision by mentioning the three types of POS and the capabilities of each in detail.

Mobile, Terminal, cloud **(12 Marks) CO2 &CO3**

Q.4 A cybersecurity consultant has to explain to a firm how his solution will help in combating important cybersecurity concerns; help him in explaining the important cybersecurity concerns by elaborating on the concept of a) Vulnerability b) Backdoor c) Denial of Service Attack and d) Eavesdropping.

(12 Marks) CO4

Q.5 Case Study: FinTech Disruption in Payments

Overview: An Indian fintech company, was founded in 2010 as a mobile wallet platform. Initially starting with online payments, then diversified into various financial services like bill payments, mobile recharges, and later into banking, insurance, wealth management, and e-commerce. It became a pioneer in India's digital payments revolution, especially after the Indian government's demonetization move in 2016. With over 350 million registered users, it is one of the largest players in India's fintech ecosystem.

Key Highlights:

1. Demonetization as a Turning Point: In 2016, the government of India demonetized INR 500 and INR 1,000 notes, which caused a surge in digital payments. The entity with its already established infrastructure, saw its user base skyrocket as cash shortages drove consumers and businesses to adopt digital wallets.
2. Transition to Financial Services: The entity expanded its business from being a digital wallet to offering services like Payments Bank, mutual funds, insurance products, and even an online marketplace. This diversification strategy helped the entity become a comprehensive financial platform.
3. Challenges: As the entity expanded its services, it faced stiff competition from other players, alongside regulatory hurdles in managing its payments bank. While it was a first mover in mobile wallets, its market share in UPI-based payments dropped due to growing competition.

Questions:

1. How did the entity leverage demonetization in 2016 to grow its user base and establish dominance in the digital payments sector?
2. What are the key challenges faced by the entity as it transitioned from a mobile wallet company to a full-fledged fintech platform offering financial services?
3. With the increasing competition in the digital payments space, how can the entity differentiate itself and sustain its growth in the long run?

(12 Marks) CO5

DELHI SCHOOL OF BUSINESS
By Vivekananda Institute of Professional Studies - TC

PGDM / PGDM (FINTECH) Program
TRIMESTER - IV (Batch: 2023-25)
END-TERM EXAMINATION, SEPTEMBER 2024

Course Name	Robotic Process Automation	Course Code	
Duration	Three Hours	Max. Marks	60

Instructions:

1. All the questions are compulsory

2. **Read all questions carefully:** Ensure that you fully understand each question before attempting to answer. Provide clear and concise responses, adhering to the specific instructions given for each section.

Q.1 Marks:20 (CO:01)

Explain how RPA differs from agentic AI automation methods, focusing on rule-based task execution versus adaptive decision-making. Provide a FinTech example, such as PDF Reader or fraud detection workflows, where RPA enhances efficiency and accuracy.

Q.2 Marks:20 (CO:02,03)

Describe the process of building a real-time bot that fetches content from the Google API to generate answers. What are the key steps involved in:

- **Setting up the Google API for Content Retrieval?**
  Explain how to set up the Google API to retrieve financial content or data relevant to FinTech, such as stock prices, market trends, or financial news.
- **Integrating the API with the Bot?**
  Describe the integration process of the Google API with a chatbot or virtual assistant, enabling it to pull financial information and provide real-time responses.

- **Generating Relevant Answers Based on Fetched Content?**
  Discuss how the bot processes and filters the fetched content (e.g., financial news or reports) to generate contextually relevant, accurate answers for users seeking financial insights or updates.

Q.3 **Marks:20 (CO:04,05)**

What challenges might arise when building a real-time bot that fetches financial content

From the Google API? Discuss potential solutions for:

- **Handling Large Volumes of Data**
  Explain the challenges of managing large datasets, such as real-time financial news or stock data, and discuss strategies like data filtering, caching, and using efficient APIs to ensure smooth performance.

- **Ensuring the Accuracy and Relevance of Fetched Content**
  Discuss the difficulties in ensuring that the bot retrieves accurate and relevant financial content, and propose solutions such as content validation, advanced filtering algorithms, and integrating trusted financial data sources like financial documents.