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**JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA**

**PGDM-SECTION A**

**SECOND TRIMESTER (Batch 2023-25)**

**END-TERM EXAMINATIONS, JANUARY 2024**

**Set-I (END TERM)**

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| Course Name | Corporate Finance | Course Code | **20202** |
| Max. Time | **2 hours** | Max. Marks | **40 MM** |
| **INSTRUCTIONS:**  **All questions are mandatory.**  **Its an open book exam. Students are allowed to bring text book only (Parrino, R., & Kidwell, 2017).**  **Loose sheets or papers of any kind are strictly prohibited. Exchange of books in the Exam Hall is strictly prohibited. Violation of this rule may result in disqualification from the exam.**  **In Excel sheets, you must use a formula to enter a value in a cell. You can't use the Fx function.**  **Each student will answer on a different sheet of one Excel document and upload it with their name and roll number.** | | | |

Q1. Two mutually exclusive investment projects, Project X and Project Y, are being considered by a company. Both projects have unconventional cash flows over a 10-year period. The required rate of return for the company is 10%.

Project X requires an initial investment of $400,000, and its annual cash inflows are as follows: Year 1: $60,000, Year 2: -$30,000, Year 3: $90,000, and so on for the remaining years. Project Y has an initial investment of $350,000, and its cash inflows are: Year 1: $50,000, Year 2: $100,000, Year 3: $140,000, Year 4: $150,000, Year 5 to 7: $40,000, and Year 8 to 10: -$40,000.

1. Estimate the Net Present Value (NPV) and Internal Rate of Return (IRR) for both Project X and Project Y, using a required rate of return of 10%. (**Marks: 5)**
2. Explain how the NPV and IRR methods may lead to conflicting recommendations for these two projects. Highlight any specific insights into the unconventional cash flows that contribute to the divergence in results. (**Marks: 3)**
3. Additionally, Recommend on which project should be accepted based on your analysis and discuss any limitations or caveats associated with using NPV and IRR in this scenario. (**Marks: 2) (CLO 2; BT Level V)**

Q2. ABC Corporation has issued a 10-year bond with 7 years remaining to maturity. The bond has a semi-annual coupon rate of 7%, and the face value is $1,000. The current price of the bond in the market is $1,100.

1. Determine the yield to maturity (YTM) for this bond with effective tax rate of 25%. **(Marks 5)**
2. Assuming an investor purchases this bond at the current market price of $1,100, explain the implications of the calculated yield to maturity (YTM) in relation to the bond's coupon rate. **(Marks 2)**
3. While comparing YTM with the coupon rate, what does this suggest about the bond's attractiveness to investors at its current market price? **(Marks 2)** **(CLO 2; BT Level II, V)**

Q3. You've taken out an INR 50,000 loan with a 10% annual interest rate. The loan term is 10 years, and the interest is compounded quarterly.

1. Estimate the quarterly payment, interest amount, and remaining balance for each quarter using the loan amortization schedule. **(Marks 3)**
2. Analyse and explain how and why the interest amount, principal repayment, and remaining balance change over the 10-year period. **(Marks 2) (CLO 2; BT Level IV)**

Q4. Sunshine Electronics Inc. is anticipating an annual dividend per share of $1.20 from annual earnings per share of $3.60. The current market price of Sunshine Electronics' stock is $30 per share. Adhering to the company’s target capital structure, the firm has $15 million in assets, with 45% funded by debt. Assume that the firm’s book value of equity equals its market value. Historically, the firm has achieved a return on equity (ROE) of 15%, and this trend is expected to continue this year and in the foreseeable future.

a. Based on that information, Estimate the long-run growth rate that the firm can be expected to maintain and stock’s required return or cost of equity? (Hint: g=Retention rate × ROE.)

b. If the firm changes its dividend policy and pays an annual dividend of $1.80 per share, financial analysts predict that the change will have no effect on the firm’s stock price or ROE. Therefore, determine firm’s new expected long-run growth rate and cost of equity?

c. Examine how does the company's dividend policy impact its expected long-run growth rate, and what considerations might influence the decision to retain earnings or distribute dividends?

d. In the context of the firm's capital structure, explain how does the mix of debt and equity influence its overall risk profile and the required return on its stock? **(CLO 3; BT Level IV, V; Marks: 4 X 2=8)**

Q5. ElectroPower Corporation is engaged in the production of electric vehicle batteries. The company manufactures 1,800 batteries per day at a cost of $7 per battery for materials and labor. The process takes 18 days to convert raw materials into a battery. ElectroPower extends a credit period of 45 days to its customers, and the company usually settles payments with its suppliers in 25 days.

a. Determine the length of ElectroPower’s cash conversion cycle.

b. At a steady state where ElectroPower produces 1,800 batteries per day, estimate the amount of working capital the company needs to finance.

c. If ElectroPower manages to extend its payables deferral period to 35 days while maintaining the average collection period at 45 days, determine what amount could the company reduce its working capital financing needs?

d. Explain how does the length of the cash conversion cycle impact the liquidity and financial health of ElectroPower Corporation? **(CLO 3; BT Level V; Marks: 4 X 2=8)**