**JAIPURIA INSTITUTE OF MANAGEMENT, INDORE**

**PGDM**

**FOURTH TRIMESTER (Batch 2021-23)**

**END-TERM EXAMINATION, NOV-2022**

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| Course Name | **Financial Modelling and Analysis** | Course Code | **40226** |
| Max. Time | **2 hours** | Max. Marks | **40** |

**INSTRUCTIONS:**

* Answer all questions.
* This is excel based examination.
* You are not supposed to carry any soft material in Pen Drive etc.
* You are required to mention your Name and Roll Number on the top of the Excel Sheet Name and Roll No.’
* Attempt each question on a separate excel worksheet.
* You are required to do all the computations in MS Excel using appropriate formulas and functions.
* All the interpretations of excel output have to be written in the answer sheet (hard copy) provided to you.
* Please remember to save your excel file before submitting your excel output and answer sheet.

**Questions.1 (Marks 10)**

The Profit and Loss Account and Balance Sheet of Alpha Limited for the accounting years from 2016-17 to 2021-22 are given in Excel Worksheets (Sheets ‘Profit and Loss Account’ and ‘Balance Sheet,’ respectively).

1. What is the Return on Equity (ROE) of Alpha Limited for each of the accounting years from 2016-17 to 2021-22? Interpret the results.
2. Create the financial model for Dupont Analysis in MS Excel. Decompose the ROE of Alpha Limited for each of the accounting years from 2016-17 to 2021-22 into tax burden, interest burden, operating profit margin, total asset turnover ratio, and total asset to net worth ratio. In which year did Alpha Limited have the highest ROE? Interpret the results
3. Explain the reasons for the difference in the ROE of Alpha Limited for the accounting years ended March 31, 2021, and March 31, 2022.

Note: Do all your computations in MS Excel in the Sheet ‘Answer 1’ and write all the interpretations in the answer sheet provided to you.

**Questions.2 (Marks 10)**

Gamma Limited borrows Rs. 90,000,000 on a mortgage loan, which is to be repaid in 120 equal monthly payments at the end of each of the next 120 months. The lender charges an interest rate of 12% per annum, compounded monthly on balance at the beginning of each month.

1. Create the financial model in MS Excel for the loan amortization schedule.
2. What is the amount of each payment Alpha makes? Interpret the results.
3. Why does the amount of interest decline over time?

Note: Do all your computations in MS Excel in the Sheet ‘Answer 2’ and write all the interpretations in the answer sheet provided to you.

**Questions.3 (Marks 10)**

Delta Limited is considering purchasing or leasing a machine that costs Rs. 90,000,000.

The machine, if purchased, will be depreciated on a straight-line basis over six years to a zero

residual value. A leasing company is willing to lease the asset for Rs. 27,00,000 per year; the

first payment on the lease is due at the time the lease is undertaken (i.e., year 0), and the

remaining five payments are due at the beginning of years 2–6 (i.e., years 1-5). Your company has a tax rate of 30% and can borrow at 10% per annum from its bank.

1. Create the financial model to decide whether Delta Limited should take the machine on lease or purchase the machine.
2. Should your company lease or purchase the asset? Explain your answer.

Note: Do all your computations in MS Excel in the Sheet ‘Answer 3’ and write all the interpretations in the answer sheet provided to you.

**Questions.4 (Marks 10)**

Consider a portfolio of two stocks whose statistical parameters are given below.

* Stock A: Annual Expected return = 18%, Annual Standard Deviation of Returns = 30%.
* Stock B: Annual Expected return = 13%, Annual Standard Deviation of Returns = 22%.
* Correlation Coefficient between the Returns of Stocks A and B = 0.6

1. Simulate the monthly returns of Stocks A and B for the next sixty months. Explain each step.
2. From the simulated monthly returns, estimate the stocks’ A and B average monthly returns, the standard deviations of stocks’ A and B average monthly returns, and the correlation between the stocks’ A and B returns.
3. Compare the given values and estimated values of
4. stocks A and B expected returns,
5. the stocks A’s and B’s standard deviation of returns, and
6. the correlation coefficient between the returns of stocks A and B.

Explain your answer.

Note: Do all your computations in MS Excel in the Sheet ‘Answer 4’ and write all the interpretations in the answer sheet provided to you.