

DEPARTMENT OF HUMANITIES AND MANAGEMENT

HUM 3051: Engineering Economics and Financial Management

Risk Analysis and Estimations in Projects

Question Bank

- 1) What are risks and what is risk management?
- 2) Explain briefly the risk management process.
- 3) Explain the risk management approaches.
- 4) Explain the types of risk management.
- 5) State the importance and limitations of risk management.
- 6) What is sensitivity analysis. State the significance of the same in risk analysis.
- 7) What are the merits and shortcomings of sensitivity analysis?
- 8) Jawahar Industries has identified the following factors, with their respected expected values, having a bearing on the NPV of their new project.
 - Initial investment: 10,000
 - Cost of Capital: 11%
 - Quantity manufactured and sold: 1000
 - Price per unit: 20
 - Variable cost per unit: 15
 - Fixed costs: 1000
 - Depreciation: 1000
 - Tax rate: 20%
 - Life of Project: 7 years
 - Net Salvage Value: Nil

Assume the following variables can take the values as shown:

Underlying variable	Pessimistic	Optimistic
Quantity manufactured & sold	700	1400
Price per unit	18	23
Variable cost per unit	16	14

Calculate the sensitivity of NPV to variation in:

- a) Quantity manufactured and sold
- b) Price per unit
- c) Variable cost per unit

9) What is the meaning of scenario analysis? State its significance in risk analysis of a project.

10) Differentiate between sensitivity analysis and scenario analysis.

11) A company has the following cash flow forecast for their new project:

	Year 0	Rs. In Millions Years 1 – 10
Investment	(400)	
Sales		440
Variable costs (75% of sales)		330
Fixed costs		20
Depreciation (Straight line method)		40
Pre-tax profit		50
Taxes (at 20%)		10
Profit after taxes		40
Cash flow from operations		80
Net cash flows		80

What is the NPV of the new project? Assume that the cost of capital is 10%. The range of values that the underlying variables can take under three scenarios: pessimistic, expected, and optimistic are as shown below:

Underlying variables	Pessimistic	Expected	Optimistic
Investment (Rs. In million)	420	400	360
Sales (Rs. In million)	350	440	500
Variable Cost (as percent of sales)	80	75	700
Fixed Costs	25	20	18
Cost of Capital	11	10	9

What are the NPVs under different scenarios?

12) What is forecasting risks? Explain ways to reduce forecasting risks.

13) What is break-even analysis? Explain accounting, cash-flow, and financial break-even point with an example.

14) Explain the following methods to adjust the value for risk:

- a) Risk adjusted discount rates
- b) Certainty Equivalent Approach