CASE SCENARIO BASED MCQ
Topic – Investment Decisions (Capital Budgeting)
Faculty – CA, CPA Vinod Kumar Agarwal
(AIR 2 – CA Foundation, AIR 4 – CA Intermediate and AIR 24 – CA Final)

CASE SCENARIO : 1 (MTP August 2024)

Mathangi Ltd. is a News broadcasting channel having its broadcasting Centre in Chennai. There are total 200 employees in the organisation including top management. As a part of employee benefit expenses, the company serves tea toits employees, which is outsourced from a third-party. The company offers tea three times a day to each of its employees. The third-party charges ₹ 10 for each cup of tea. The company works for 200 days in a year.

Looking at the substantial amount of expenditure on tea, the finance departmenthas proposed to the management an installation of a master tea vending machine from Nirmal Ltd which will cost ₹ 5,00,000 with a useful life of five years. Upon purchasing the machine, the company will have to incur annual maintenance which will require a payment of ₹ 25,000 every year. The machine would require electricity consumption of 500 units p.m. and current incremental cost of electricity for the company is ₹ 24 per unit. Apart from these running costs, the company will have to incur ₹ 8,00,000 for consumables like milk, tea powder, paper cup, sugar etc. The company is in the 25% tax bracket. Straight line method of depreciation is allowed for the purpose of taxation.

Nirmal Ltd sells 100 master tea vending machines. Variable cost is ₹ 4,50,000 per machine and fixed operating cost is ₹ 25,00,000. Capital Structure of Mathangi Ltd and Nirmal Ltd consists of the following –

Particulars	Mathangi Ltd.	Nirmal Ltd.
Equity Share Capital (Face value ₹10 each)	40,00,000	40,00,000
Reserves & Surplus	25,00,000	50,00,000
12% Preference Share Capital	12,00,000	Nil
15% Debentures	20,00,000	40,00,000

Risk free rate of return = 5%, Market return = 10%, Beta of the Mathangi Ltd. = 1.9 You are required to answer the following five questions based on the above details:

1. If sales of Nirmal Ltd are up by 10%, impact on its EBIT is

   (a) 30%
   (b) 60%
   (c) 5%
   (d) 20%

2. Combined leverage of Nirmal Ltd is

   (a) 1.63
   (b) 2.63
   (c) 1.315
   (d) 2

3. Discount rate that can be applied for making investment decisions of MathangiLtd is

   (a) 12%

(b) 13.52%

(c) 15%

(d) 20%

4. Incremental cash flow after tax per annum attributable to Mathangi Ltd due toinvestment in the machine is

(a) ₹ 2,39,438

(b) ₹ 1,98,250

(c) ₹98,250

(d) ₹1,31,000

5. Net present value of investment in the machine by Mathangi Ltd is

(a) ₹6,88,522

(b) ₹ 1,88,522

(c) ₹ 9,91,250

(d) ₹4,91,250 **(5 x 2 = 10 Marks)**

CASE SCENARIO : 2 (RTP - Sept 2024)

Mr. Ronak, a doctor by profession, has his own private hospital at Goa having specialization in cardiac treatments. However, now-a-days, Goa not only being a place for the tourists, but is also a place for business delegates, cultural people, politicians, students and other classes of people. Gradually, Goa is opening new windows for businesses and getting recognition as an important tourist and leisure hub in South West India.

There are a number of hotels and resorts at Goa. However, the need still exists for more hotel services, in particular with the excellent service, and because of the large number of visitors from all over the country and all walks of life always favour Goa state for their recreation.

Mr. Ronak although being a doctor by profession is contemplating to establish a five-star hotel at Goa. The hotel will consist of 5 floors. Thehotel will include 40 normal rooms and 8 deluxe suites, as well as a restaurant and couple of conference rooms with a small wedding hall onthe ground floor. Following are the estimated occupancy rate including fare composition in the Table 1. Being a five-star hotel, breakfast wouldbe complementary but lunch and dinner are on a-la-carte basis.

Table 1: Hotel accommodation, estimated occupancy rate and fare.

Types of Facility	Numbers	OccupancyRate	Average Rent Per Room PerDay	GrowthRate inRent
Normal Room	40	33% or 120 Days	₹ 8000	12%
Deluxe Suites	8	33% or 120 Days	₹ 25,000	9%
Conference withWedding Hall	2	40 days	₹ 3,00,000	9%
Restaurant	1	All days	27,000 salesper day	8%

For the sake of simplicity in calculation, growth rate to be applied onlyonce after completion of 10 years.

The estimated cost of land will be ₹ 250 million and the construction cost will be ₹ 100 million. The estimated salvage value at the end of 15^{th} year will be 25% of the cost of construction. The cost of furniture will be of ₹ 1,50,000 for each normal room and ₹ 3,80,000 for each deluxe suite. The cost of the furniture for the conference room with wedding hall will be ₹ 7,00,000 each and for restaurant it will be 10,00,000. In addition, the hotel will require 4 elevators at different locations and will be costing around ₹ 35,00,000 each. The cost of buying and installing electronic appliances like TV sets, Air conditioners, Fridge etc. will be around ₹ 35 million. Elevators would be depreciated ata rate of 5% p.a. Electronic appliances will have a salvage value of 15% of its acquisition cost at the end of 15 years.

The hotel will be built by renowned builder named **'Harihar Infrastructure'**. The builder estimated that building will survive for 15years. The required furniture will be supplied by the local reputed furniture company named **Veru Furnishings Ltd**. They ensured that furniture will go for 10 years very smoothly. At the end of tenth year, new furniture for normal rooms and deluxe suites will be bought and old furniture for the same will be sold by the hotel owner. The owner of the hotel estimates that he would be able to purchase the required furnitureat 15% higher price than the previous purchase price. The salvage valuesof the furniture at the end of tenth year will be 5% of their purchaseprices with no book value remaining. Furniture at restaurant, conferenceand wedding hall will not require any major changes as such except for minor renovation which will cost ₹ 20,00,000 in total at the end of 12^{th} year. Any scrap generated on account of such renovation will besold at ₹ 1,75,000.

In order to boost the tourism industry at Goa, the state govt will be granting subsidy of 15% on the initial capex incurred, it will be paid at the time of cost incurred and additional subsidy of 10% on annual revenue expenses for the first 3 years of operation, but will be credited directly in the bank account only at the end of 5^{th} year and the sameshall be non-taxable.

The total annual recurring expenses will be ₹ 1,80,00,000/-. It includes salaries to managers, staff and employees, utilities expenses, house keeping and security services' contract, AMC for electronic appliances, restaurant supplies and materials, other miscellaneous expenses, etc. After the end of 10 years, annual recurring expenses will increase at arate of 10% which is to be applied once. Furthermore, the hotel authority is determined to provide the best and professional hotel services to the clients by offering training to the employees. They decided to spend ₹ 5,00,000 per year for the purpose of training of the employees.

The hotel project will be entitled to enjoy tax holiday for the first five years after which the corporate tax rate of 25% will also be applied forthe hotel. The Cost of equity for the company is 12% and the estimated hurdle rate by considering the structure of capital of the proposed hotelis fixed at 15%.

(Depreciation to be taken on SLM basis and assume 360 days in a year. Ignore depreciation on furniture used in restaurant, conference and wedding hall)

Based on above, please answer to the following MCQs.

1. The amount of net initial investment required is:

(a) ₹ 41.044 Crores

(b) ₹ 34.887 Crores

(c) ₹ 6.156 Crores

(d) ₹ 40.74 Crores

2. NPV of the project is:

(a)₹ 7.0532 Cr

(b)₹ 8.4029 Cr

(c)₹ 8.4935 Cr
(d)₹ 2.4700 Cr

3. Pay Back period of the project to recover the initial investment is:

(a) 5.12 years

(b) 12.02 years

(c) 11.80 years

(d) 4.46 years

4. Estimated Recurring accounting profit/(loss) for first three years are:
(a)₹ 7.0928 Cr p.a

(b)₹ 6.9078 Cr p.a
(c)₹ 6.9937 Cr p.a
(d)₹ 9.6120 Cr p.a

5. IRR of the project is:

(a) 16.25%

(b) 19.39%
(c) 15%
(d) 12%

CASE SCENARIO : 3 (Sept 2024 CA Inter Exam)

RS Limited is manufacturing' and selling soft drinks in India. The production process involves one important process, which increases the shelf life of the soft drinks. Presently, the machine used for this purpose is an old one, in which wastage due to breakage of glass bottles is considerably high and due to its limited capacity, the company is not in a position to increase its production.

The production manager has approached the CEO of RS Limited for purchasing an automated machine, which will drastically reduce the wastage due to breakage during the process of increasing shelf life of soft drinks. The automated machine will support increase in production. The production manager is confident that acquisition of the automated machine will be beneficial for the company.

Other information is as under :

- With the introduction of automated machine, additional sales and related costs over the next five years would be as follows:

Year	Additional Sales Unit	Selling price per unit (₹)	Variable Manufacturing, Selling and Distribution cost per unit (₹)	Additional fixed Selling & Distribution Cost (₹)
1	20,000	30	20	25,000
2	25 ,000	30	20	30,000
3	30,000	35	20	30,000
4	32,000	35	22	35,000
5	28,000	35	22	35,000

- Cost of acquisition of automated machine is ₹ 5,00,000. Residual value of the automated machine at the end of its life of 5 years will be ₹ 50,000. Depreciation on automated machine will be under Straight line method. Depreciation is not included in the cost stated above.

- The Production manager has estimated the cost savings (before tax) due to reduction in breakages as under :

	Year 1	Year 2	Year 3	Year 4	Year 5
Savings in cost due to reduction in breakages	₹ 15,000	₹ 15,000	₹ 20,000	₹ 20,000	₹ 20,000

- The machine which is being used at present has zero written down value and if sold, would fetch an amount of ₹ 10,000 only.
- The cost of capital of the company is 10 %. The tax rate applicable for the company is 30%. Ignore capital gain taxes,

  P.V Factors of ₹ 1 at year end at 10%:

	Year 1	Year 2	Year 3	Year 4	Year 5
P.V Factor of ₹1	₹ 0.909	₹ 0.826	₹ 0.751	₹ 0.683	₹ 0.621

You are required to answer the following Questions 1 to 5

1. What is the Cash Inflow after Taxes for the Year 1, Year 2 and Year 3 of the investment proposal?
   (a) ₹ 1,50,000, ₹ 1,85,000, ₹ 3,45,000
   (b) ₹ 1,65,000, ₹ 1,95,500, ₹ 3,55,000
   (c) ₹ 1,60,000, ₹ 1,91,500, ₹ 3,35,000
   (d) ₹ 1,70,000, ₹ 1,90,000, ₹ 3,45,000,
2. What is the Discounted Cash Inflow after Taxes for the Year 1, Year 2 and Year 3 of the investment proposal?
   (a) ₹ 1,49,985, ₹ 1,61,483, ₹2,66,605
   (b) ₹ 1,36,350, ₹ 1,52,810, ₹2,59,095
   (c) ₹1,54,530, ₹ 1,56,940, ₹2,55,340
   (d) ₹ 1,45,440, ₹ 1,58,179, ₹2,51,585
3. What is the Net Present Value of the investment proposal?
   (a) ₹ 3,78,990.30
   (b) ₹ 4,54,980.60
   (c) ₹ 4,74,890.40
   (d) ₹ 3,89,260.70
4. What is the Discounted Payback period of the investment proposal?
   (a) 2.74 years
   (b) 2.87 years
   (c) 2.38 years
   (d) 2.48 years
5. What is the Profit before Taxes for the Year 2, Year 3 and Year 4 of the investment proposal?

   (a) ₹ 2,35,000, ₹ 4,40,000, ₹4,01,000
   (b) ₹ 1,45,000, ₹ 3,50,000, ₹3,11,000
   (c) ₹ 2,05,000, ₹ 4,10,000, ₹3,66,000
   (d) ₹ 1,40,000, ₹ 3,60,000, ₹ 3,31,000

About CA Vinod Kumar Agarwal

Summary:

Founder Member of A.S. Foundation, India's Leading Academy for C.A. Course, CA Vinod Kumar Agarwal is a fellow member of ICAI and a past member of the Board of Studies, ICAI. With a teaching experience of twenty years, he has guided more than 1,00,000 students and is ranked as one of the best teachers for Accounts and Financial Management at Intermediate level and Financial Reporting and SFM at Final Level. He has authored books on Accounts, Advanced Auditing for CA Final, Auditing for Intermediate, Accounting Standards, Ind AS, Costing and Financial Management, and his books have sold more than 2,00,000 copies.

Education:

- Passed the Certified Public Accountant (CPA) (USA) exam in 2007.
- Post-graduation from Pune University with First Class.
- Graduation from B.M.C.C, Pune with distinction.
- Passed the Diploma in Business Finance Conducted by ICFAI, Hyderabad.
- Passed the Derivative Module test conducted by National Stock Exchange.
- Also appeared for UPSC exam and cleared Mains twice.

Teaching Experience:

- Teaches Accounts, Advanced Accountancy, Financial management and Economics for Finance at CA Intermediate Level and Financial Reporting and Strategic Financial Management (SFM) at CA Final level.
- Pioneer of creating and distributing video tutorials in pen drives/google drive among students.
- Produced All India Toppers (1st Rank) in CPT examination and final examination apart from more than 250 all India merit- holders.
- More than 30000 Facebook subscribers, more than 1,30,000 YouTube subscribers.
- Sold more than 40000 video lectures in pen-drive and google-drive mode.
- In 2019, launched a brand VKNOW, to become a national brand for digital learning.

Publications and Achievements:

- A merit holder in all the three levels of exams conducted by ICAI (2nd rank, 4th rank, and 24th rank in CA Foundation, CA Intermediate and CA Final respectively).
- Scored 99 marks in Accountancy in CA Foundation.
- Authored books on Accounts, Advanced Auditing for CA Final, Auditing for Intermediate, Accounting Standards, Ind AS, Costing and Financial Management.

- Complied a book “No Truth, Only Interpretations”, a book on motivation, inspiration and guidance.
- Compiled a book, “Mind Candy”, a book on motivation.
- Compiled a book, “Sweet Voice”, a book on inspirational quotes.
- Working experience with India’s top firms Firms like M/s. S.B. Billimoria and A.F. Ferguson (both member firm of Deloitte).
- Published article in the Students Newsletter of ICAI on “Valuation of Equity Shares” and “Stock Market Index”.
- Presented a paper on “Corporate Governance and Role of Auditor” in National Students Conference held in Goa.

Teaching Approach:

- Simple and effective way of teaching through concept building, class-room practice, home-exercise, and power-point presentation.
- A large variety of problems are solved in the class to meet the examination requirements.
- Notes are updated frequently covering amendments and exam problems.