M S RAMAIAH INSTITUTE OF TECHNOLOGY

[Autonomous Institute, Affiliated to VTU]
BANGALORE-560 054

CS 723   **Question Bank**

Q.No.		**UNIT – I**	Marks	
1.	a)	1 Analyze the basic approach to economic problem solving and decision making process through scientific method.	(10)	CO1

	b)	Determine the effective interest rate for a nominal annual rate of 6% that is compounded
		    1. Semi annually
		    2. Quarterly
		    3. Monthly
		    4. daily
			(10)	CO1

2	a	Discuss fundamental approach to economic problem solving and decision making process through scientific method	10	CO1

	b	Explain the problem solving process. Bring out the difference between
		    i) intuition and analysis
		    ii) tactics and strategy
			6	CO1

	c	Derive the formula for capital recovery factor (uniform series). Firstly derive F = P (1 + i)"	8	CO1
	d	What will be the amount accumulated by each of these present investments? i)Rs.6750 in 20 years at 4% compounded semi-annually. ii)Rs. 11,000 in 10 years at 12% compounded quarterly	6	CO1
3	a)	The interest rate for a loan of Rs.2000 is 10% per year. If interest had not been paid each year, but has been allowed to compound how much interest would be due to the lender as lump sum at the end of 6 years	(10)	CO1
	b)	A 45 year old person is planning for his retired life. He plans to divert Rs. 30000/- from his bonous as investment every year for the next 15 years. The bank gives 10% interest rate compounded annually. Find the maturity value of his account when he is 60 year old. Draw cash flow diagram	(10)	CO1
4	a	A single payment of Rs.1766 is deposited in an account each year that earns 6 percent compounded continuously. What is the amount in the account immediately after the fifth payment?	6	CO1
	b	What is meant by continuous cash flow? Obtain an expression to calculate the continuous-compounding series compound-amount factor for continuous uniform payments.	6	CO1
	c	Machine `X' has a first cost of Rs.9000 and no salvage value at the end of 6 years of useful life and has an annual operating cost of Rs.5000. Machine `Y' costs Rs.16,000 now and has an expected resale value of Rs.4,000 at the end of its life of 9 years and operating cost of machine Y is Rs. 4,000.	8	CO1

		Compare the two alternatives on the basis of their PW using repeated project assumption at 10% annual interest. Use CFD for year analysis.		
	d	Discuss the various methods to compare present worths of assets with unequal lives.	6	CO1
5	a	Describe the necessary conditions for present worth comparision	6	CO1
	b	Describe the process of problem solving and decision making	10	CO1
	c	A deffered annuity is to pay $ 500 per year for 10 years with the first payment coming after 6 years from today. Determine the present worth	4	CO1
6	a	Apply the concepts of interest rate to derive a formula for arithmetic gradient conversion factor. Use the formula to compute the following problem. Receipts from an investment will decline by $150 for each quarter for 2 years from a level of $ 10000 at the end of the first quarter. For a nominal interest rate of 12% calculate a constant annual series amount that is equivalent to the gradient over 2 years period	8	CO1
	b	Distingush between • Tactics and Strategy • Nominal rate of interest and effective rate of interest • Arithmetic gradient and geometric gradient	12	CO1
7	a	Derive the sinking fund factor	5	CO1
	b	A deferred annuity is to pay $500 per year for 10 years with the first payment coming 6 years from today. Determine the present worth of annuity at the interest rate of 12%	5	CO1
	c	Explain the different conditions for present worth comparison. A $500,000 gift was bequeathed to a city for the construction and continued upkeep of music shell. Annual maintenance for a shell is estimated at $15,000. In addition, $25,000 will be needed every 10 years for painting and major repairs. How much will be left for the initial construction costs, after funds are allocated for perpetual upkeep? Deposited funds can earn 6% annual interest, and these returns are not subject to taxes	5	CO1
	d	What is the maximum amount that you could afford to bid for a bond with a face value of $5000 and a coupon rate of 8% payable semiannually, if your minimum attractive rate of return is 10%. The bond matures in 6 years	5	CO1
8	a	Explain the basic approach to economic problem solving and decision making process with the help of scientific method.	10	CO1
	b	A 25 year old person is planning for his retired life. He plans to divert Rs. 20000/- from his bonous as investment every year for the next 25 years. The bank gives 12% interest rate compounded annually. Find the maturity value of his account when he is 60 year old. Draw cash flow diagram	10	CO1
9	a	Derive the formula for capital recovery factor (uniform series).	10	CO1

	b	The interest rate for a loan of Rs.20000 is 12% per year. If interest had not been paid each year, but has been allowed to compound how much interest would be due to the lender as lump sum at the end of 6 years	10	CO1
10	a	Apply the concepts of interest rate to derive a formula for arithmetic gradient conversion factor.	8	CO1
	b	List out the necessary conditions for present worth comparision and explain	1	CO1

Q.No.		UNIT – II	Marks	
1.	a)	The supervisor of a small machine shop has received three suggestions for reducing production costs. Suggestion A is to buy new jigs and fixtures; B is to rebuild an existing machine to improve its performance; and C is to purchase a new machine to replace some manual labour. Estimates have been made for the three alternative investments.	10	CO2

	Alternatives		
	A	B	C
First cost, $	1800	2350	4200
Economic life, years	4	4	8
Net annual saving, S	645	840	1100
Payback period, years	2.8	2.8	3.8

Q.No.		UNIT – II	Marks	
		The supervisor selects alternative B saying that because of limited capital for investments, shorter payback periods are preferable. With alternatives A & B having the same payback period, B is favored because the annual savings are greater than for A. What are the flaws in this reasoning? Substantiate your argument with calculations		
	b)	Distinguish between service life, accounting life and economic life of an asset.	6	CO2
	C	What is the maximum amount you would bid for a bond with a face value of $5000 and a bond rate of 8% payable semiannually, if your minimum attractive rate of return is 10%? The bond matures in 6 years.	4	CO2
2	a	Compare i. going value v/s liquidating value of an asset ii. book value v/s market value	4	CO2
	b	Derive an equivalent annual payment equation that includes the salvage value.	6	CO2
	c	A short concrete canal can be constructed as part of a flood control project; the placement of a large galvanized culvert will serve the same function. The cost of the canal, which will last indefinitely, is $75,000; and its maintenance costs will average $400 per year. Culverts, which will have to be replace every 30 years, will cost $40,000 and have an annual maintenance cost of $700. Salvage values are negligible or both alternatives, and the government interest rate is 6%. Which alternative has the lower equivalent annual cost?	10	CO2
3	a)	Discuss the term used to define life of an asset	(6)	CO2

	b)	An asset was purchased 5 years ago for $52,000/-. It was expected to have an economic life of 8 years, at which time its salvage value would be $ 4000. If the function that the asset was serving is no longer needed, for what price must be sold now to recover the invested capital when i=12%	8	CO2
	c	A standby electric generator was purchased 6 years ago for $ 8000. At the time it expected that the equipment would be used for 15 years and would have salvage value of 10% of the first cost. The generator is no longer needed and is to be sold for $ 2500 using an interest rate of 15%. Determine the difference between the anticipated and actual equivalent annual capital costs	6	CO2
4	a	A machine needed for 3 years can be purchased for $ 77,662 and sold at the end of the period for about $ 25,000. A comparable machine can be leased for $ 30,000 per year. If the firm expects a return of 20% on investments should it buy or lease the machine when end of year payments expected	10	CO2
	b	Describe the mechanism of bond evaluation and stock evaluation	10	CO2
5	a	The following alternatives are available to accomplish an objective of 12 year duration. Compare the present worth of the alternatives. Use an interest rate of 7% Draw Conclusions	10	CO2
	b	A Rs.40000 cost of extrusion machine is expected to be obsolete after 10 years with no salvage value. If it generates Rs.8000 per year, of which Rs.3000 must be paid as taxes what is the pay off period	10	CO2
6	a	(a) A company has three proposals for expanding its business operations. The details are given below. Each alternative has significant salvage value at the end of its life. Assuming an interest rate of 15% compounded annually, find the best alternative for expanding the business operations of the company using the annual equivalent method Draw cash flow diagram	10	CO2

(Question 5a table):

	Plan A	Plan B	Plan C
Life cycle in years	6	3	5
First cost (Rs)	2000	8000	10000
Annual cost (Rs)	3200	700	500

(Question 6a table):

Alternative	Intial cost in Rs.	Annual revenue in Rs.	Life in years
A1	2500000	800000	10
A2	2000000	600000	10
A3	3000000	1000000	10

	b	Evaluate the following • Ownership life • Account life • Economic life	10	C
7	a	(a) A company has three proposals for expanding its business operations. The details are given below. Each alternative has significant salvage value at the end of its life. Assuming an interest rate of 12% compounded annually, find the best alternative for expanding the business operations of the company using the annual equivalent method Draw cash flow diagram -- {table below}	10	CO2
	b	The following alternatives are available to accomplish an objective of 12 {table below} year duration. Compare the present worth of the alternatives. Use an interest rate of 10% Draw Conclusions	10	C02
8	a	Compare • going value v/s liquidating value of an asset • book value v/s market value	4	CO2
	b	Derive an equivalent annual payment equation that **includes the salvage** value.	6	CO2
	c	A short concrete canal can be constructed as part of a flood control project; the placement of a large galvanized culvert will serve **the same function.** The cost of the canal, which **will last** indefinitely, is $75,000 **; and its maintenance** costs will average $400 per year. Culverts, which will have to be replace every 30 years, will cost $40,000 and **have an annual** maintenance cost of $700. Salvage values are negligible or both alternatives and the government interest rate is 6%. Which alternative has the lower equivalent annual cost?	10	CO2
9	a	The supervisor of a small machine shop has received three suggestions for reducing production costs. Suggestion A is to buy new jigs and fixtures; B is	10	CO2

Question 7a table:

Alternative	Intial cost in Rs.	Annual revenue in Rs.	Life in years
A1	2500000	800000	15
A2	2000000	600000	15
A3	3000000	1000000	15

Question 7b table:

	Plan A	Plan B	Plan C
Life cycle in years	8	5	10
First cost (Rs)	2000	8000	10000
Annual cost (Rs)	3200	700	500

to rebuild an existing machine to improve its performance; and C is to purchase a new machine to replace some manual labour. Estimates have been made for the three alternative investments.

	A	B	c
First cost, $	1800	2350	4200
Economic life in years	4	4	8
Net annual saving	645	840	1100
Pay back period in years	2.8	2.8	3.8

The supervisor selects alternative B saying that because of limited capital for investments, shorter payback periods are preferable. **With alternatives A & B** having the same payback period, 8 is favored because **the annual** savings are greater than for A. What are the flaws in this **reasoning?** Substantiate your argument with calculations.

	b	Distinguish between service life, accounting life and economic **life of an asset**	6	CO2
	c	What is the maximum amount you would bid for a bond with a face **value of** $5000 and a bond rate of 8% payable semiannually, if your minimum attractive rate of return is 10%? The bond matures in 6 years.	4	CO2
10	a	Discuss the concepts of theory and practice behind interest rates	8	CO2
	b	An asset was purchased 5 years ago for $52,000. It was expected to have an economic life of 8 years, at which time its salvage value would be $4000. If the function that the asset was serving is no longer needed, for what price must it be sold now to recover the invested capital when i=12 percent?	12	CO2

Q.No.		UNIT – III	Marks	
1.	a)	What is meant by rate of return? Define the various rates of return. Why is it not practical to have a single interest rate for the entire economy?	10	CO3
	b)	What is a project? Explain the various project attributes. 29,31	10	CO3
2	a	Describe the various project phases and the project life cycle 88	10	CO3
	b	Identify the ten specific skills required to be a successful project manager 35,36	10	CO3
3	a)	What is the process for identifying potential IT projects? Discuss the methods for selecting projects. 182,185	(10)	CO3
	b	Distingush between a) Minimum acceptable rate of return and Internal rate of Return b) Project and Program 29,43 Project life cycle and deliverables	10	CO3
4	a	Discuss the concepts of theory and practice behind interest rates	5	CO3
	b	Analyze the different project attributes	5	CO3
	c	Explain the four frames of organization 76	5	
	d	What is project Charter? Explain the inputs, tools, techniques and contents of project charters 194	5	CO3
5	a	An investment of Rs.5900 in new equipment is expected to have a salvage value of Rs.1000 after 4 years life. Using the sum of digits method find out the depreciation for every year and what is the depreciation amount to be collected after 2 years	10	CO3
	b	Identify the ten specific skills required to be a successful project manager with suitable examples.	10	CO3
6	a	Highlight the steps in project management process with an example 112	10	CO3
	b	Discuss system approach with 3 sphere model 75	10	CO3
7	a	Describe rate of return and discuss the different rates of return	8	CO3
	b	A $ 1000 utility bond with 14 years remaining before maturity can now be purchased for $ 760. It pays interest of $20 each 6 month period. What is the rate of returned earned by purchasing the bond at the current market price plus a brokerage charge of $20.	6	CO3
	c	Define project integration management. Describe the process in project integration management 177,178	6	CO3
8	a	Define project and describe the various attributes of the project	10	CO3
	b	**What is the process for identifying potential IT projects? Discuss the methods for selecting projects.**	10	CO3
9	a	**What is meant by rate of return ? Define the various rates of return . Why is it not practical to have a single interest rate for the entire economy?**	10	CO3
	b	**Describe the different ways to develop a work breakdown structure (WBS) and explain *why* it is difficult to do so.** 243	10	CO3

10	a	**Explain the following schedule development techniques** **i) PERT** **ii) critical chain scheduling** 290,293	8	CO3
	b	**Analyze why schedule issues often cause the most conflicts on projects and describe the main processes involved in project time management.**	12	CO3

Q.No.		**UNIT – IV**	Marks	
1.	a)	Describe the different ways to develop a work breakdown structure (WBS) and explain why it is difficult to do so.	10	CO4
	b)	Explain the following schedule development techniques : i) PERT, ii) critical chain scheduling 290,293	10	CO4
2	a	Analyze why schedule issues often cause the most conflicts on projects and describe the main processes involved in project time management.	10	CO4
	b	Explain how earned value management (EVM) can be used to measure project performance 332	10	CO4
3	a)	List the objectives of cost estimation in project management	(10)	CO4
	b	With a neat diagram explain the project life cycle curves with examples	10	CO4
4	a	Identify the various steps in project cost estimation	10	CO4
	b	Analyze the importance of work breakdown structure in project management	10	CO4
5	a	How significant is the cost estimation in project management explain	10	CO4
	b	List out the various steps in project cost estimation and budgeting	10	CO4
6	a	Discuss in brief the various steps of communication management.	10	CO4
	b	Analyze the importance of work breakdown structure in project management	10	CO4
7	a	Describe the importance of project scheduling and briefly outline the different activities in project scheduling	5	CO4
	b	Explain Maslow's hierarcy of needs 405	5	CO4
	c	Discuss the importance of risk and identify the common sources of risk in an IT project.	10	CO4
8	a	Describe project scope management with various steps involved in it	10	CO4
	b	Describe the critical path method. Determine the critical path for a project X from the diagram below.	10	
9	a	Explain the different objectives of cost estimation in project management	10	CO4
	b	Explain the project life cycle curves with examples	10	CO4

10	a		8	CO4
		List out the importance of risk and identify the common sources of risk in an IT project.		
	b	Explain in brief the various steps of project communication management.	12	CO4

Q.No.		Unit V	Marks	
1.	a)	Explain the different cost estimation tools and techniques	10	CO5
	b)	How can project communications be improved?	10	CO5
2	a	What is quality planning? Discuss the important scope aspects of IT projects that affect quality.	10	CO5
	b	What are the topics addressed in a risk management plan? Describe the categories of risks faced by organizations.	10	CO5
3	a)	Describe the various tools and techniques used for quality control.	(10)	CO5
	b	How can project communications be improved?	10	CO5
4	a	What is quality planning? Discuss the important scope aspects of IT projects that affect quality.	10	CO5
	b	What are the topics addressed in a risk management plan? Describe the categories of risks faced by organizations.	10	CO5
5	a	Describe the principles embodied in the capability maturity model (CMM).	10	CO5
	b	Highlight the main considerations affecting the use of SQA components give examples	10	CO5
6	a	What is risk management. Explain the steps involved in it with examples	10	CO5
	b	Assess the different types of SQA system component classes with examples	10	CO5
7	a	Explain the different objectives of cost estimation in project management	10	CO5
	b	Explain the project life cycle curves with examples	10	CO5
8	a	List out the importance of risk and identify the common sources of risk in an IT project.	8	CO5
	b	Explain in brief the various steps of project communication management.	12	CO5