

**Q.P. Code : 537000****(3 Hours )****[ Total Marks : 100**

- N.B. :** (1) Question number **one is compulsory.**  
 (2) Answer any **Three** questions from the rest.  
 (3) Assume suitable data wherever necessary.

1. A) Explain factors affecting demand. **5**  
 B) Explain the concept of salvage value and scrap value. **5**  
 C) What is present worth of an annuity? **5**  
 D) What you mean by fixed capital investment. **5**
2. A) An evaporator of area 10 m<sup>2</sup> was imported in 1975 at a total cost of Rs.700000/- In 2003 we require a new evaporator of 40 m<sup>2</sup> area. Estimate its total cost. Data : **10**  
 (i) Marshall & Swift index 1975:444; 2003:2850  
 (ii) Capacity exponent is 0.4.  
 (iii) In 1975 import duty was 200% CIF (Cost+ Insurance+ Freight), IN 2003 : 65% CIF  
 (iv) In 1975 Freight was 10% of cost, In 2003 : 25% of cost.  
 (v) Insurance is unchanged at 2% of cost.
- B) Heat exchanger has been designed for use in a chemical process. A standard type of HE with a negligible scrap value costs Rs. 1.5 lakh and will have useful life of 6 yrs. Another proposed HE of equivalent design capacity costs Rs. 200000/- lakh but will have useful life of 10 yrs. and scrap value of Rs. 20000/- Assuming an effective compound interest of 8% per year determine which H E is cheaper by comparing capitalized costs. **10**
3. A) A new storage tank cost Rs. 8 lakh. It will last 10 years and have zero salvage value. An equivalent worn out storage tank is available and can be put into service after repairs. Repair costs Rs.3 lakh and will have to be repeated every three years. If the cost of the fund is 9% p.a., which tank would you opt for? At what prevailing rate for the cost of funds would you reverse your decision? **12**
- B) Explain the any two methods of profitability evaluation with relevant formula. **8**
4. A) Following is the data for a particular chemical plant: **10**  
 TCI = Rs. 8,00,00,000; WCI = Rs. 1,00,00,000;  
 Production rate: 9000 units/day (plant runs for all 365 days in a year);  
 Turnover ratio for plant = 2. What should be selling price of product per unit?

**[ TURN OVER ]**

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- B) Calculate NPV at 20% rate of return & Internal rate of return of profitability 10 for an investment with following cash flow.

Years	-2	-1	0	1	2	3	4
Annual cash flow (Rs.)	600	1000	300	450	750	950	1200

What would be intrnal rate of return when capital investment is increased by 10% ?

5. A) The original value of a piece of equipment is Rupees 1100000/- lakh, 10 completely installed and ready to use. Its salvage value is estimated to be rupees one lakh at the end of a sevice life estimated to be 10 years. Determine the asset value of the equipment at the end of 5 yrs using.
- Straight -line method (SLM)
  - Textbook declining balance method.(DBM)
  - Double declining balance method.( DDBM)
- B) Draw &explain in detail TREE DIAGRAM for industrial operation. 10
6. A) A boiler was purchased for Rs 45000 on 1st Jan 1946. The installation 10 charges Rs 7000. The boiler was to be replaced on 31st Dec1965, if scrap value was estimated as 15000, what should be rate of depreciation on 15th June 1955. After 14 years of running same boiler tubes are replaced & replacement cost Rs. 1200. What should be a new rate of depreciation?
- B) A company offering an easy installment option while selling a equipment 10 worth Rs. 3,00,000/- at a time of purchase Rs. 60000/- in cash & the remaining amount in 30 equal monthly installments, of Rs. 10000/- each. A bank also willing to pay 75% of the equipment cost & recovers it in 30 equal installments of Rs.8500/-each. Which option is better? Why?

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