Module 3 · Leasing decisions P14 · 3.1–3.3

SM pp. 111–134 (exercise 135–146). **7 marks in every paper since Dec'23** (expected 7.0): **Q2(b) a leasing sum in all 6** — the lessor's rental in 4 of the last 5 (J24, J25, D25, J26), **lease v buy** in D23 and D24 (both December papers: due). No MCQ trend; 3.3 cross-border leasing / sale and lease back never asked (PTP Q8(c)).

Paper	Q2(b)
Dec'23	**finance lease v borrow-and-buy a car**: PV of outflows, net advantage of leasing
Jun'24	lessor's minimum rental (wet lease, inflating costs)
Dec'24	**buy (loan schedule) v lease with revenue-share rent**
Jun'25	lessor's rentals in the ratio 2 : 2 : 1 : 1 (= SM Illus. 3 type)
Dec'25	**rental that makes lease = loan** (break-even rental)
Jun'26	deferred and ballooned rentals (= MQP Q2(b) with new numbers)

HOW IT IS ASKED

- **Lessee**: PV of after-tax lease rentals v PV of buying with a loan (instalments − interest shield − depreciation shield − salvage), discounted at the **after-tax cost of debt**.
- **Lessee's break-even rental** (D25): the rental that makes the two equal.
- **Lessor**: minimum rental = (cost − PV of depreciation shield − PV of salvage) ÷ PV factor of after-tax rentals; structured, deferred, ballooned or ratio rentals change only the factor.

A Formula sheet — when to use

Formula	When to use · notes	SM
Discount rate = cost of debt × (1 − tax)	Lease v buy is a financing comparison (Illus. 1: 12 × 0.7 = 8.4%).	[SM 113]
Lease: PV = rental × (1 − t) × PVIFA	Rentals in arrears; in advance → shift one year.	[SM 113]
Buy: PV of instalments − PV of interest shield − PV of depreciation shield (− PV of salvage)	Instalment = loan ÷ PVIFA at the loan rate; interest from the loan schedule.	[SM 113, SM 115]
Lessee BELR: rental × (1 − t) × PVIFA = PV of the buy option	Maximum rental the lessee will pay.	[SM 115]
Lessor BELR: PV of after-tax rentals = cost − PV of depreciation shield − PV of salvage	Minimum rental the lessor can accept.	[SM 115]
Leveraged lease: rental − loan instalment must recover the lessor's equity	Lessor partly financed by a lender.	[SM 117]

B Lease basics 3.1 · 3.3

- **Lease**: the lessor conveys to the lessee the right to use an asset for an agreed period for rentals; a lessee may sub-lease. [SM 111]
- **Finance lease** transfers substantially all risks and rewards of ownership; **operating lease** does not — "operating lease is merely a rental, financial lease is a disguised purchase". [SM 111]
- **To the lessor**: full security (owner, can repossess), tax relief by depreciation, high profits, trading on equity. [SM 111]
- **To the lessee**: source of finance; no dilution of ownership; no loss of control (no lender's conditions); tax benefit (whole rental expensed); less risk (obsolescence with the lessor); **sale and leaseback** to raise cash. [SM 112]
- 3.3: **cross-border leasing** and **sale and lease back** — read the headings (PTP Q8(c)). [SM 122–123]

C Lease v buy and break-even rentals · Q2(b) 3.1 · 3.2

PROBLEMS BOX · LEASING (Q2(b) — RECOMPUTED BY SCRIPT m03_patterns.py)

WORKED PATTERN · SM ILLUSTRATION 1 (EXCEL TRANSPORT, LEASE V BUY)

- Truck ₹3,00,000; loan 12% in 4 equal instalments; or lease ₹90,000 a year; SLM; tax 30%. Rate 12(1 − 0.3) = 8.4%.
- Lease: 90,000 × (1 − 0.3) × 3.28 = **₹2,06,640**. [SM 113]

Buy option	₹
Instalment 3,00,000 ÷ 3.037 = 98,782; PV 98,782 × 3.2828	3,24,282
Less: PV of interest tax shield (interest 36,000 · 28,466 · 20,028 · 10,634)	24,258
Less: PV of depreciation tax shield (75,000 × 30% = 22,500 a year)	73,864
PV of buying → lease is cheaper	**2,26,160**

[SM 113–114] The last year's interest (10,634) is the balancing figure: instalment − closing principal.

LESSEE'S BREAK-EVEN RENTAL · SM ILLUSTRATION 2

X × (1 − 0.30) × 3.2828 = 2,26,160 → **X = 98,417**, the most the lessee will pay. [SM 116]

LESSOR'S STRUCTURED RENTALS · SM ILLUSTRATION 3 (4 : 3 : 2 : 1)

Cost ₹6 crores, SLM 4 years, tax 30%, 10% → 7.0%: depreciation shield ₹1.5 crores × 0.30 × 3.387 = ₹1.52415 crores; 6.1278X = 6,00,00,000 − 1,52,41,500 → **X = 73,04,171**; rentals ₹2,92,16,684, ₹2,19,12,513, ₹1,46,08,342, ₹73,04,171. [SM 116–117]

DEC'25 Q2(b) GAMMA — RENTAL THAT EQUALS THE LOAN (OUR WORKING)

- Loan ₹80,000 at 12%, principal ₹16,000 a year; depreciation ₹16,000 (full cost); tax 35%; after-tax rate 10%.
- Net outflow = principal + interest − 35% × (interest + depreciation): year 1 = 16,000 + 9,600 − 8,960 = **₹16,640**; then 15,392 · 14,144 · 12,896 · 11,648.
- Salvage 4,000 − 10% commission = 3,600, fully depreciated → after tax **₹2,340** inflow in year 5.
- PV of the loan option = **₹53,049.93**; L × 0.65 × 3.790 = 53,049.93 → **rental ₹21,534.37** a year.

STEPS (ANSWER LAYOUT)

1. Discount rate = after-tax cost of debt (or the given after-tax cost of capital).
2. Loan schedule: opening · interest · instalment · principal · closing.
3. Year table: instalment (or principal + interest) − tax on interest − tax on depreciation − salvage after tax = net outflow → PV.
4. Lease: rental × (1 − t) × factor. Compare, or solve for the rental.

PRACTISE THESE (MOST LIKELY FIRST)

D23, D24 Q2(b) (lease v buy — due) · **D25 Q2(b)** · J26 Q2(b) = MQP Q2(b) (deferred / ballooned) · J25, J24 Q2(b) (lessor) · PTP Q2(b) (leveraged), postal Q2(b), Q3(a), Q3(b) · SM Illus. 1–5, Additional illus. (SM 123–131), solved case 1 (SM 133) · SM exercise sums 1–5 (SM 142–144) · **ICMAI Practice Workbook Ch3 illus. 1–10** · MCQ bank Q24, Q26–Q32, Q208–Q211.

Item	Rule	SM
Rate	k_d (1 − t)	[SM 113]
Lessee BELR	= PV of buying	[SM 115]
Lessor BELR	cost − PV dep. shield − PV salvage	[SM 115]

⚠ TRAPS

- The lessee does **not** get the depreciation shield under lease; the lessor does.
- Use the after-tax rate for both options; the instalment itself uses the pre-tax loan rate.
- Rentals in advance: first rental at year 0, no factor; its tax saving comes at year 1.
- Salvage under buy: after commission and after tax on the gain over book value.