Module 16 · Foreign exchange risk management P14 · 16.1–16.3

SM pp. 685–707 (exercise 708–716). **7–16 marks every paper** (expected 6.6): **Q7(b) — a hedging-choice sum in every paper since Dec'23** (forward v money market v option, sometimes futures or no hedge). Translation (16.2) and operating exposure (16.3): never asked — read the headings.

Paper	Hedging sum
Jun'23	USD import: pay with a loan or take supplier credit; CAD payables: forward v option
Dec'23	Q7(b) export receivable: forward v currency futures v no hedge
Jun'24	yen payable: forward v option; invoicing currency for an export and an import
Dec'24	Q7(a) net EUR exposure: forward v money market v option
Jun'25	USD payable: forward v call option v EUR cross route
Dec'25	**Q7(b) USD payable: forward v money market v option (two scenarios)**
Jun'26	Q7(b) yen payable and USD receivable: forward v money market

Hedge	Payable (you must buy FC)	Receivable (you will sell FC)
Forward	buy FC forward at the forward **ask**	sell FC forward at the forward **bid**
Money market	invest PV of FC now (FC rate); buy it spot with home currency borrowed (home rate); repay loan + interest	borrow PV of FC now (FC rate); sell spot; invest the home currency (home rate)
Option	buy a **call**: exercise if spot > strike; cost = min(spot, strike) + premium	buy a **put**: exercise if spot < strike
Futures	buy futures (long)	sell futures (short); contracts = exposure ÷ contract size

Forward / money market / options / futures as external techniques. [SM 687–691]

A Transaction exposure and the hedges 16.1

- **Transaction exposure**: effect of exchange-rate movement in the time gap between the transaction date and the settlement date. [SM 685]
- **Internal techniques**: choice of invoicing currency; leading and lagging; exposure netting (bilateral, multilateral); back-to-back credit swap; sharing risk. [SM 686–687]
- **Invoicing**: foreign currency appreciating → invoice exports in foreign currency, imports in home currency; depreciating → the reverse (J24 Q7(b), postal MCQ). [SM 686]
- **External techniques**: currency forwards, money market, currency options, currency futures. [SM 687]
- Options limit the downside loss without limiting the upside — the advantage over forwards and futures. [SM 690]
- **Translation exposure** (16.2): current / non-current, monetary / non-monetary, temporal, current-rate methods; balance-sheet hedge. **Operating exposure** (16.3): diversify production and markets, currency zones, sourcing flexibility, flexible manufacturing, diversified financing. [SM 693–696]

PROBLEMS BOX · HEDGING CHOICE (Q7(b) — RECOMPUTED BY SCRIPT m16_patterns.py)

WORKED PATTERN · SM MONEY-MARKET EXAMPLE (FRENCH EXPORTER, £1 MILLION)

- Borrow £ so that it grows to £1 million: B = £1/1.02 = £0.98039 million (8% for 3 months).
- Sell spot at €1.4120/£ → €1.3843 million; invest at 5.5% → **€1.4033 million** certain. [SM 689]

OPTION · SM EXAMPLE (GERMAN IMPORTER, $10 MILLION)

- Call at $1.19/€, premium 2.5%: €0.025 × 10/1.20 = €0.2083 million.
- Exercise (spot $1.175): €10/1.19 = €8.4034 + €0.2083 = 8.6117; lapse (spot $1.21): €8.2645 + €0.2083 = **€8.4728 million**. [SM 690–691]

DEC'25 Q7(b) MEDCARE — USD 8 MILLION PAYABLE (OUR WORKING)

- Forward: 8m × 84.50 = **₹67.60 crore**.
- Money market: invest 8m ÷ 1.015 = $78,81,773 now; buy at 83.70 = ₹65.97 crore borrowed at 8% for 6 months → **₹68.61 crore**.
- Option (call 84, premium ₹1.20): at 82.50 lapse → ₹66.96 crore; at 86 exercise → ₹68.16 crore; expected (0.4 / 0.6) **₹67.68 crore**.

Q7(b) answer layout
(i) forward: amount × forward rate

↓

(ii) money market: PV in FC → spot → borrow / invest at home rate → future value

↓

(iii) option: each scenario (exercise or lapse) + premium → expected

↓

(iv) compare; the **lowest certain** outflow (or highest inflow) wins

- Lowest **certain** cost: the **forward** (₹67.60 crore).

PRACTISE THESE (MOST LIKELY FIRST)

D25, J26 Q7(b) · D24 Q7(a) · J25 Q7(a) · J24 Q7(a), Q7(b) (invoicing) · D23 Q7(b) (futures) · J23 Q7(a), Q7(b) · MQP Q7(b) · postal Q1(viii) · SM exercise sums 2–5 (SM 711–712) and MCQs (SM 708, SM 710) · **ICMAI Practice Workbook Ch9 illus. 10**.

⚠ SM SLIPS AND TRAPS

- SM 688 forward example: the question says $6,00,000, the working uses $5,00,000 (₹32 million at ₹64). SM 690–691 option example prints "€08.6117" and then "€8.6167" — 8.4034 + 0.2083 = **€8.6117 million**.
- Money market for a payable: **invest** in the foreign currency; for a receivable: **borrow** in it. Use rates for the period (8% × 6/12).
- Option premium is paid up front — add it to every scenario (ICMAI usually ignores interest on it unless told).
- "Lowest certain cost" — compare forward and money market; the option's expected cost is not certain.