1_detailed = """1. Product Description:

This is a structured note with a 1-year maturity and quarterly fixed coupon payments at 6% per annum (i.e., 1.5% every 3 months). At maturity, the principal redemption is linked to the 1-year Constant Maturity Swap rate (CMS1). Specifically:

- If the CMS1 rate at maturity is greater than or equal to 1%, the investor receives 100% of the notional (par value).

- If CMS1 is below 1%, the investor receives a proportion of the principal, calculated as: Redemption = Calc Amount x MAX(Final CMS1 / Strike, 0)

Downside: The key risk is in the principal repayment. If CMS1 falls below 1%, the investor begins to lose principal. For example, if CMS1 is 0.5%, they receive only 50% of their notional. In the worst case (CMS1 = 0%), the redemption is zero.

Benefit: The investor earns a relatively high fixed coupon (6%) irrespective of CMS1 levels. Additionally, if CMS1 is stable or improves and ends above 1%, the investor receives full principal, making this attractive in rising or stable interest rate environments.

"""

q2_detailed = """2. Payout Profile (Excluding Coupon):

The plot shows the bond's final redemption value as a function of the final CMS1 rate. The y-axis represents redemption as a percentage of par, while the x-axis shows the CMS1 rate in percentage terms.

From 0% to 1%, the redemption increases linearly (e.g., 0.5% CMS1 gives 50% of par). At and above 1%, the redemption is capped at 100% of par. This creates a kinked linear payout shape—effectively a capped participation in CMS1.

"""

q3_detailed = """3. Embedded Options:

This structured note contains one key embedded derivative feature:

- Option Type: Custom linear put-style option

- Underlying: 1-year Constant Maturity Swap rate (CMS1)

- Strike: 1%

- Notional Size: $1,000 per note (Calculation Amount)

- Position: Investor is short the option (issuer is long the option)

- Expiry: 1 year (coincides with bond maturity)

- Payoff: If CMS1 is below 1%, the investor receives a proportionally reduced principal; above or at 1%, full par is paid.

This is equivalent to selling a structured (non-standard) put option to the issuer. The option has a linear payout between 0% and 1% CMS1, floored at 0 and capped at par.

"""

q4_detailed = """4. Risks at Inception (Issuer's Perspective):

From the issuer’s point of view, the following Greeks are relevant:

- Delta: Positive — if CMS1 rises, the issuer owes full principal, but this risk diminishes as CMS1 increases.

- Vega: Negative — lower implied volatility benefits the issuer, as it reduces the chance of CMS1 finishing below 1%.

- Gamma: Negative — the issuer has non-linear exposure near the 1% strike, particularly sensitive to small movements around this level.

- Theta: Positive — as time passes, without significant CMS1 movements, the issuer’s liability decreases.

- Rho: Slightly positive — rising interest rates may lift CMS1, reducing redemption risk.

The issuer essentially benefits from stable or rising CMS1 rates and low rate volatility.

"""

q5_detailed = """5. Risk Evolution as Market Moves:

The risk profile is path-dependent and changes as CMS1 and time evolve:

- If CMS1 is significantly above 1%, delta and gamma decrease, and the option becomes deeply out-of-the-money (issuer exposure is minimal).

- If CMS1 is near 1%, gamma and vega increase — this is where the payoff is most sensitive to rate changes and volatility.

- If CMS1 drops below 1%, delta turns sharply negative from the issuer's view (issuer saves on redemption), and gamma remains high.

- As time passes, sensitivity (gamma/vega) falls unless CMS1 is very close to the 1% threshold.

The issuer's risk is greatest near the strike and near maturity.

"""

q6_detailed = """6. Investor Suitability and Market Conditions:

An investor might choose this product in the following scenarios:

- They expect CMS1 rates to stay stable or rise modestly above 1%.

- They want enhanced income (6% fixed coupon) in a low-rate environment.

- They believe rate volatility will remain low, reducing the chance of adverse redemption outcomes.

- They are comfortable taking principal risk in exchange for yield — e.g., pension funds or insurers with defined liabilities.

This structure is appealing when traditional fixed-income yields are low, but the investor has a constructive view on the direction or stability of swap rates.

"""