Quiz 3 — Answers and explanations

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Correct answers are **bolded** and underlined. A short explanation follows each question.

1. The government issues more Treasury bonds to finance a larger deficit. Holding bond demand unchanged, what happens to Treasury bond prices and yields?

   A. Prices rise; yields fall.
   B. Prices fall; yields rise.
   C. Both prices and yields rise.
   D. Both prices and yields fall.

   Why: More Treasury issuance increases bond supply. With demand unchanged, bond prices fall and yields rise.

2. The **risk structure** of interest rates explains yield differences among bonds with the same maturity. Which factors are central to this explanation?

   A. Differences in maturity and expected future short-term rates.
   B. Differences in firms' sales growth and inventory turnover alone.
   C. Differences in investors' original purchase prices alone.
   D. Differences in default risk, liquidity and tax treatment.

   Why: Same-maturity yields can differ because of default risk, liquidity and taxes. Differences across maturities concern term structure.

3. Under **liquidity-premium theory**, why can a yield curve slope upward even if expected future short-term rates are constant?

   A. Investors require a positive term premium that increases with maturity.
   B. Longer-maturity bonds must have lower default risk.
   C. A bond's coupon automatically increases as its maturity approaches.
   D. Equal expected short-term rates require equal yields at every maturity.

   Why: A positive term premium that rises with maturity can produce an upward slope even when expected future short-term rates are flat.

4. A project has a positive NPV when its expected cash flows are discounted at the appropriate required return. What does this mean?

   A. Its expected return is exactly equal to the required return.
   B. It is expected to create value beyond covering the required return.
   C. Its annual accounting profit equals the project's NPV.
   D. Its initial investment will be recovered within one year.

   Why: Discounting already accounts for the required return. Positive NPV measures expected additional value, not annual accounting profit or a payback date.

5. A firm can undertake only one of two projects. Both are feasible and have positive NPVs at their appropriate discount rates. Project North has the higher NPV; Project South has the higher IRR and shorter payback. Which should the firm choose to maximize value?

   A. Project South, because the higher IRR always creates more dollar value.
   B. Project South, because the shorter payback includes all future cash flows.
   C. Project North, because it creates more value in today's dollars.
   D. Either, because positive NPV makes the projects equally valuable.

   Why: Choose Project North's higher NPV. IRR can misrank projects; payback ignores time value and cash flows after the recovery date.

6. A firm has several positive-NPV projects but too few engineers to undertake them all. Projects cannot be divided. What should it seek?

   A. The feasible combination with the highest total NPV.
   B. The combination that uses every engineer, regardless of total NPV.
   C. The single project with the highest IRR, regardless of its NPV.
   D. Every positive-NPV project, regardless of the staffing limit.

   Why: The objective is the greatest total NPV within the engineer limit. Using every engineer or choosing the highest-IRR project need not achieve that objective.

7. A firm has already paid a nonrefundable feasibility-study fee. A proposed project would use a building that could otherwise be rented out. How should the project analysis treat these items?

   A. Include the study fee; exclude the foregone rent.
   B. Include both the study fee and the foregone rent.
   C. Exclude both the study fee and the foregone rent.
   D. Exclude the study fee; include the foregone rent.

   Why: The nonrefundable study fee is already spent and is a sunk cost. Foregone future rent is an opportunity cost caused by using the building for the project.

8. A new product will displace, or cannibalize, **2,000 units** of the firm's existing product each year. The old product sells for **$50 per unit** and has a variable cost of **$30 per unit**. What annual **pretax contribution** is lost from the old product? Fixed costs do not change.

   A. $100,000
   B. $40,000
   C. $60,000
   D. $0

   Why: Lost contribution is $2{,}000 \times (50 - 30) = 40{,}000$. The firm loses $100,000 of sales but saves $60,000 of variable costs. Fixed costs do not change; the question asks for the pretax effect.

9. A project requires an increase in operating net working capital today and releases that investment in full when the project ends. How does this affect project free cash flow?

   A. It increases FCF today and decreases FCF at the end.
   B. It decreases FCF both today and at the end.
   C. It decreases FCF today and increases FCF at the end.
   D. It has no effect because the investment is eventually recovered.

   Why: An increase in working capital ties up cash and reduces FCF today. Recovering it releases cash and increases terminal FCF. Recovering the same amount later does not remove its timing cost.

10. Why is depreciation added back to after-tax operating profit when calculating free cash flow?

    A. It reduced accounting profit without a current cash payment; its tax effect remains.
    B. It is an additional cash receipt from customers each year.
    C. It eliminates the need to subtract the equipment's purchase cost.
    D. It makes the project's working-capital investment tax-free.

    Why: Depreciation reduced operating profit without a current cash payment. Adding it back removes the noncash expense while retaining its tax effect. Equipment purchases are still separate cash outflows.