1- What appears to be the targeted debt ratio of a firm that issues $15 million in bonds and $35 million in equity to finance its new capital projects?

Debt ratio = $15m/($15m + 35m) = 0.30, or 30%

2- The weighted-average cost of capital for a firm with a 65/35 debt/equity split, 8% pre-tax cost of debt, 15% cost of equity, and a 35% tax rate would be?

WACC = [0.65 × .08 × (1 - 0.35)] + (0.35 × 0.15) = 0.0863, or 8.63%

3- The weighted-average cost of capital for a firm with a 40/60 debt/equity split, 8% cost of debt, 15% cost of equity, and a 34% tax rate would be:
WACC = [0.40 × .08 × (1 - 0.34)] + (0.60 × 0.15) = 0.1111, or 11.11%

4- How much is added to a firm's weighted-average cost of capital for 45% debt financing with a required rate of return of 10% and a tax rate of 35%?
Component cost of debt = 0.45 × [0.10 × (1 - 0.35)] = 0.0293, or 2.93%

5- What is the WACC for a firm with 50% debt and 50% equity that pays 12% on its debt, 20% on its equity, and has a 40% tax rate?
WACC = [0.5 × 0.12 × (1 - 0.40)] + (0.5 × 0.20) = 0.136, or 13.6%

6- Company X has 2 million shares of common stock outstanding at a book value of $2 per share. The stock trades for $3 per share. It also has $2 million in face value of debt that trades at 90% of par. What is the weight of debt for WACC purposes?
Weight of debt = (0.90 × $2m)/[(2m × $3) + (0.90 × $2m)] = 0.2308, or 23.08%

7- What is the WACC for a firm using 55% equity with a required return of 15%, 35% debt with a required return of 8%, 10% preferred stock with a required return of 10%, and a tax rate of 35%?
WACC = (0.55 × 0.15) + (0.1 × 0.1) + [0.35 × .08 × (1 - 0.35)] = 0.1107, or 11.07%

8- How much will a firm need in cash flow before tax and interest to satisfy debtholders and equity holders if the tax rate is 40%, there is $10 million in common stock requiring a 12% return, and $6 million in bonds requiring an 8% return?

After-tax cash flow	($10m × 12%)	$1,200,000
Tax @ 40%	(40/60 × $1.2m)	800,000
Pretax cash flow		$2,000,000
Interest	($6m × 8%)	480,000
Cash flow before interest and taxes		$2,480,000

9- How much will a firm need in cash flow before tax and interest to satisfy debtholders and equity holders if the tax rate is 35%, there is $13 million in common stock requiring a 10% return, and $6 million in bonds requiring a 6% return?

After-tax cash flow	($13m × 10%)	$1,300,000
Tax @ 35%	(35/65 × $1.3m)	700,000
Pretax cash flow		$2,000,000
Interest	($6m × 6%)	360,000
Cash flow before interest and taxes		$2,360,000

10- A firm has 12,000 shares of common stock outstanding with a book value of $20 per share and a market value of $39. There are 5,000 shares of preferred stock with a book value of $10 and a market value of $26. There is a $400,000 face value bond issue outstanding that is selling at 87% of par. What weight should be placed on the preferred stock when computing the firm's WACC?

Weight of preferred = (5,000 × $26)/[(12,000 × $39) + (5,000 × $26) + ($400,000 × 0.87)] = 0.1374, or 13.74%

11- Calculate a firm's WACC given that the total value of the firm is $2 million, $600,000 of which is debt, the pre-tax cost of debt is 10%, and the cost of equity is 15%. The firm pays no taxes.

WACC = 0.10($600,000/$2m) + 0.15[($2m - 600,000)/$2m] = 0.135, or 13.5%

12- A company's CFO wants to maintain a target debt-to-equity ratio of 1/4. If the WACC is 18.6%, and the pretax cost of debt is 9.4%, what is the cost of common equity assuming a tax rate of 34%?

$D/V = 1/5$ and $E/V = 4/5$

$0.186 = 1/5(0.094)(1 - 0.34) + 4/5(r_e)$

$r_e = 21.70\%$

13- The yield-to-maturity of a firm's bond is 8.5%. The firm has a beta of 1.3 and a tax rate of 34%. The market risk premium is 8.4% and the risk-free rate is 3.8%. What is the firm's WACC if the firm has a capital structure that is 40% debt financed?

$r_e = 3.8\% + 1.3(8.4\%) = 14.72\%$

WACC = (1 - 0.40)(0.1472) + 0.40(.085)(1 - 0.34) = 0.1108, or 11.08%

14- What is the WACC for a firm financed with 30% debt if the debt requires an after-tax return of 10% and equity requires a 16% return?

WACC = 0.3(0.10) + (1 - 0.3)(0.16) = 0.142, or 14.2%

15- A firm has 12,500 shares of stock outstanding that sell for $42 each. The book value of equity is $400,000. The firm has also issued $250,000 face value of debt that is currently quoted at 101.2. What value should be used as the weight of equity when computing WACC?

$W_e = (12{,}500 \times \$42)/[(12{,}500 \times \$42) + 1.012(\$250{,}000)] = 0.6748$, or 67.48%