# **JPMorganChase Women in Quantitative Finance Mentorship Program – 2025**

## Advanced assignment for Fixed Income

(Share your answers in a word doc with the question number and the answer) e.g.:

1. Answer1
2. Answer2
3. Answer3…

## Questions

1. The distinction between investment-grade debt (BBB-or higher rated) and non-investment grade debt is best described by differences in:
   1. Tax status
   2. Credit quality
   3. Maturity dates
   4. Bond seniority
2. For this and the next 2 questions, consider the following bond: zero-coupon bond with notional $100, current price of $86 and time to maturity of 7 years. What is its yield-to-maturity?
3. What is its Macaulay duration?
4. What is its modified duration?
5. For this and the next 2 questions, consider the following bond: 5% coupon bond with notional $100, current price of $90 and time to maturity of 3 years. What is its yield-to-maturity?
6. What is its Macaulay duration?
7. What is its modified duration?
8. What is the current price of a 5% coupon bond with notional $100 and time to maturity of 30 years if its yield-to-maturity is 5%?
9. Rank the following bonds in terms of Macaulay duration:
10. Zero coupon bond, notional $100, yield 6%, maturity 5 years
11. 5% coupon bond, notional $100, yield 6%, maturity 5 years
12. 7% coupon bond, notional $100, yield 6%, maturity 5 years
13. 6% coupon bond, notional $100, yield 6%, maturity 4 years
14. True/False: Bonds with higher amortization have longer duration compared to bonds with lower amortization, all other characteristics (maturity, notional, etc.) being equal.
15. If we construct a yield curve based on yields of treasury bonds and another yield curve based on yields of corporate bonds of Apple, what can you say about the relation between these two curves?
16. Read about spot, par and forward curves. Assuming spot curve is upward sloping, will par and forward curves lie above or below the spot curve?
17. Read about what the yield curve shape says about the economy. In your own words describe any one theory as to why the yield curve is normally upward sloping. What is the shape of the yield curve today?
18. Read about credit spreads / yield spreads. What would you expect the relationship to be between yield spread and credit rating of a bond? Why?