



The Co-operative University of Kenya

END OF SEMESTER EXAMINATION – DECEMBER 2016

EXAMINATION FOR THE BACHELOR OF SCIENCE FINANCE
(YR III SEM I)

UNIT CODE: CMFI 2303

UNIT TITLE: FIXED INCOME SECURITIES

DATE: 7TH DECEMBER, 2016

TIME: 9:00 AM – 11:00 AM

INSTRUCTIONS:

- Answer question **ONE (compulsory)** and any other **TWO** questions

QUESTION ONE

- (a) An investor in the 28 percent tax bracket is trying to decide which of two bonds to purchase. One is a corporate bond carrying an 8 percent coupon and selling at par. The other is a municipal bond with a 5.5 percent coupon, and it too sells at par. Assuming all other relevant factors are equal, which bond should the investor select? (4 Marks)
- (b) Explain FIVE (5) risks associated with investing in fixed income securities (5 Marks)
- (c) Bavarian Brew issued convertible bonds with a par value of \$1,000. The conversion ratio on the bonds is 12.33, the current market price of the bonds is \$933.75 and the underlying stock currently sells at \$35.25.
Calculate: -
- The conversion price (2 Marks)
 - The conversion premium (2 Marks)
- (d) Discuss situations when a firm may consider distributing warrants free of charge. (4 Marks)
- (e) Suppose a client observes the following two benchmarks spreads for two bonds:
Bond issue U rated A: 150 basis points and bond issue V rated BBB: 135basis points.
Your client is confused he thought the lower rated bond (bond V) should offer a higher benchmark spread than the higher-rated bond (bond U). Explain why the benchmark spread may be lower for bond U (4 Marks)
- (f) Give THREE (3) interpretations of the pure expectations theory (6 Marks)
- (g) Explain why is the treasury yield curve the one that is most closely watched by market participants (3 Marks)

QUESTION TWO

- (a) Calculate the combined effect duration and convexity on the price of a 5 year, Kshs1,000 par 11% coupon bond with a yield to maturity of 8% (10 Marks)
- (b) Two trustees of a pension fund are discussing repurchase agreements. Trustee A told Trustee B that she feels it is a safe short-term investment for the fund. Trustee B told Trustee A that repurchase agreements are highly speculative vehicles because they are leveraged instruments. You have been called in the trustee to clarify the investment characteristics of repurchase agreements. What would you say to the trustees (10 Marks)

QUESTION THREE

- (a) Edison Inc. issued warrants for the period April 2003 to December 2007. The details of the warrants are as follows:

Amount issued	9,094,831,000
Number of outstanding shares:	4,079,070,000

Current price of the warrant:	\$ 0.390
Life to final date:	4.46 years
Risk free rate	1.134
Strike price	\$1
Volatility (Annualized standard deviation):	43.72%

Required:

- Calculate the value of the warrant (10 Marks)
- (b) Explain why an option-adjusted spread is more suitable for a bond with an embedded option than a yield spread (5 Marks)
- (c) Explain why a financial asset can be viewed as a package of zero-coupon instruments (5 Marks)

QUESTION FOUR

- (a) Observe the yields of the following treasury securities (all yields are shown on a bond equivalent basis):

Year (Period)	Year to maturity (%)	Spot Rate (%)	Year (Period)	Year to maturity (%)	Spot Rate (%)
0.5	5.25	5.25	5.5	7.75	7.97
1	5.5	5.5	6	8	8.27
1.5	5.75	5.76	6.5	8.25	8.59
2	6	?	7	8.5	8.92
2.5	6.25	?	7.5	8.75	9.25
3	6.5	?	8	9	9.61
3.5	6.75	6.82	8.5	9.25	9.97
4	7	7.1	9	9.5	10.36
4.5	7.25	7.38	9.5	9.75	10.77
5	7.5	7.67	10	10	11.2

All the securities maturing from 1.5 years on are selling at par. The 0.5 and 1.0 year securities are zero-coupon instruments. Answer the questions below

Required:

- i. Calculate the missing spot rates (12 Marks)
- ii. What is the six-month forward rate starting in the sixth year? (4 Marks)
- iii. How are spot rates related to forward rates? (4 Marks)

QUESTION FIVE

- (a) In the May 27, 2016 Weekly Market Update published by Goldman, Sachs & Co., the following information was reported in an exhibit for high-grade, tax-exempt securities as of the close of business Thursday, May 26, 2016

Maturity (Years)	Yield (%)	Yield (%) as a percentage of Treasury Yield
1	3.20	76.5
3	4.65	80.4
5	5.10	76.4
10	5.80	78.7
30	6.50	82.5

Answer the questions below.

- a) What is meant by a tax-exempt security? (3 Marks)
- b) What is meant by high-grade issue? (4 Marks)
- c) Why is the yield on a tax-exempt security less than the yield on a Treasury security of the same maturity? (5 Marks)
- d) What is the equivalent yield? (3 Marks)
- e) Also reported in the same issue of the Goldman, Sachs report is information on intra-market yield spreads. What are these? (5 Marks)