

Level I The Time Value of Money



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Test Code: L1 R06 TVOM Q-Bank

Number of questions: 55

Question	Q-Code: L1-QM-TVOM-001	LOS a	Section 2
1	The minimum rate of return that an investor must receive in order to invest in a project is <i>most likely</i> known as the: A) required rate of return. B) real-risk free interest rate. C) inflation rate.		
Question	Q-Code: L1-QM-TVOM-002	LOS a	Section 2
2	Which of the following is <i>least likely</i> to be an accurate interpretation of interest rates ? A) The rate needed to calculate present value. B) Opportunity cost. C) The maximum rate of return an investor must receive to accept an investment.		
Question	Q-Code: L1-QM-TVOM-003	LOS b	Section 2
3	Given below is information about a security whose nominal interest rate is 15%: <ul style="list-style-type: none">• The real risk-free rate of return is 3.5%• The default risk premium is 3%• The maturity risk premium 4%• The liquidity risk premium is 2% An investor wants to determine the inflation premium in the security's return. The inflation premium is <i>closest</i> to: A) 2.5%. B) 4.0%. C) 9.0%.		
Question	Q-Code: L1-QM-TVOM-004	LOS b	Section 2
4	An investor is interested in buying a bond. She looks at two bonds: a U.S. Treasury bond with a yield to maturity of 5 percent, and a bond issued by an industrial corporation, having a yield to maturity of 7 percent. The two bonds are otherwise identical i.e. they have the same maturity, and are option-free. The <i>most likely</i> explanation for the difference in yields of the two bonds is: A) default risk premium. B) inflation premium. C) real risk-free interest rate.		
Question	Q-Code: L1-QM-TVOM-005	LOS b	Section 2
5	The maturity premium can be <i>best</i> described as compensation to investors for the: A) risk of loss relative to an investment's fair value if the investment needs to be converted to cash quickly. B) increased sensitivity of the market value of debt to a change in market interest rates as maturity is extended. C) possibility that the borrower will fail to make a promised payment at the contracted time and in the contracted amount.		
Question	Q-Code: L1-QM-TVOM-006	LOS b	Section 2
6	Liquidity premium can be best described as compensation to investors for: A) inability to sell a security at its fair market value. B) locking funds for longer durations. C) a risk that investment's value may change over time.		

Question	Q-Code: L1-QM-TVOM-007	LOS b	Section 2
7	<p>Following information is given about interest rate: Nominal rate: 20% Real risk free rate: 5% Inflation premium: 4% If the risk premium incorporates default risk, liquidity risk, and any maturity premium, the risk premium is closest to:</p> <p>A) 20%. B) 15%. C) 11%.</p>		
Question	Q-Code: L1-QM-TVOM-008	LOS b	Section 2
8	<p>You are estimating the required rate of return for a particular investment. Which of the following premiums are you <i>least likely</i> to consider?</p> <p>A) Inflation premium. B) Maturity premium. C) Nominal premium.</p>		
Question	Q-Code: L1-QM-TVOM-021	LOS d	Section 3
9	<p>Your client invests USD2 million in a security that matures in 4 years and pays 7.5 percent annual interest rate compounded annually. Assuming no interim cash flows, which of the following will <i>most likely</i> be the value of the investment at maturity?</p> <p>A) USD2.150 million. B) USD2.600 million. C) USD2.671 million.</p>		
Question	Q-Code: L1-QM-TVOM-022	LOS d	Section 3
10	<p>Your client deposits USD5 million in a savings account that pays 5 percent per year compounded quarterly. What will be the value of this deposit after 2.5 years?</p> <p>A) USD5.625 million. B) USD5.649 million. C) USD5.661 million.</p>		
Question	Q-Code: L1-QM-TVOM-023	LOS d	Section 3
11	<p>Grim Smith plans to invest ¥12 million, three years from now. The rate of return has been estimated at 8 percent per year. What is the future value of this investment 11 years from now?</p> <p>A) ¥22.21 million. B) ¥27.98 million. C) ¥35.25 million.</p>		
Question	Q-Code: L1-QM-TVOM-024	LOS d	Section 3
12	<p>A three-year CD offers a stated annual interest rate of 10 percent compounded quarterly. Given an initial investment of USD80,000, which of the following is <i>most likely</i> to be the value of the CD at maturity?</p> <p>A) USD86,151. B) USD86,628. C) USD107,591.</p>		
Question	Q-Code: L1-QM-TVOM-025	LOS d	Section 3
13	<p>Donald Trump invests USD3 million in a bank that promises to pay 4 percent annual interest rate compounded daily. Assuming 365 days in a year, what will be the value of Donald's investment at the end of one year?</p> <p>A) USD3.003 million. B) USD3.122 million.</p>		

C) USD3.562 million.

Question	Q-Code: L1-QM-TVOM-018	LOS d	Section 3
14	How much amount should an investor deposit in an account earning a continuously compounded interest rate of 8% for a period of 5 years so as to earn USD2,238 ? A) USD1,500. B) USD1,523. C) USD1,541.		
Question	Q-Code: L1-QM-TVOM-019	LOS d	Section 5
15	The present value of USD10,000 to be received five years from today, assuming a discount rate of 9% compounded monthly, is <i>closest</i> to: A) USD6,387. B) USD6,499. C) USD6,897.		
Question	Q-Code: L1-QM-TVOM-020	LOS d	Section 3
16	An investor deposits £1,000 into an account that pays continuously compounded interest of 9% (nominal annual rate). The value of the account at the end of six years is <i>closest</i> to: A) £1,677. B) £1,712. C) £1,716.		
Question	Q-Code: L1-QM-TVOM-026	LOS d	Section 3
17	You invest USD50,000 for three years that will earn 3.6 percent compounded continuously. What will be the value of your investment after three years? A) USD51,832. B) USD55,702. C) USD55,596.		
Question	Q-Code: L1-QM-TVOM-027	LOS d	Section 3
18	Which of the following is <i>most likely</i> to increase as the frequency of compounding increases ? A) Interest rate. B) Present value. C) Future value.		
Question	Q-Code: L1-QM-TVOM-009	LOS c	Section 3
19	Camilla wishes to compute the effective annual rate of a financial instrument with stated annual rate of 22% and compounded on a quarterly basis? Which of the following is <i>most likely</i> to be closest to the effective annual rate? A) 23%. B) 24%. C) 25%.		
Question	Q-Code: L1-QM-TVOM-010	LOS c	Section 3
20	The nominal annual interest rate on a mortgage is 7%. The effective annual rate on that mortgage is 7.18%. The frequency of compounding is <i>most likely</i> . A) semi-annual. B) quarterly. C) monthly.		
Question	Q-Code: L1-QM-TVOM-011	LOS c	Section 3
21	Which of the three alternative one-year certificates of deposit (CD) shown below has the <i>highest</i> effective annual rate		

(EAR)?

	Compounding frequency	Annual interest rate
CD1	Monthly	8.20%
CD2	Quarterly	8.25%
CD3	Continuously	8.00%

- A) CD1.
- B) CD2.
- C) CD3.

Question	Q-Code: L1-QM-TVOM-012	LOS c	Section 3
22	If the stated annual interest rate is 11% and the frequency of compounding is daily, the effective annual rate is closest to: A) 11.00%. B) 11.57%. C) 11.63%.		

Question	Q-Code: L1-QM-TVOM-013	LOS c	Section 3
23	A fixed income instrument with a stated annual interest rate of 18% and offers monthly compounding has an effective annual rate (EAR) <i>closest</i> to: A) 18.00%. B) 19.56%. C) 20.12%.		

Question	Q-Code: L1-QM-TVOM-014	LOS c	Section 3
24	An investment earns an annual interest rate of 12 percent compounded quarterly. What is the effective annual rate? A) 3.00%. B) 12.00%. C) 12.55%.		

Question	Q-Code: L1-QM-TVOM-015	LOS c	Section 3
25	Which of the following continuously compounded rates corresponds to an effective annual rate of 7.45 percent? A) 7.19%. B) 7.47%. C) 7.73%.		

Question	Q-Code: L1-QM-TVOM-038	LOS e	Section 4
26	Haley Hopkins plans to deposit USD24,000 into her retirement account at the end of every year for the next 15 years. The account will earn 12 percent every year. Assuming she does not make any withdrawals, how much money will she have at the end of 15 years after the last deposit? A) USD894,713. B) USD1,094,713. C) USD1,294,713.		

Question	Q-Code: L1-QM-TVOM-039	LOS e	Section 4
27	You are computing the future value of an annuity. Assume that the annuity payment is USD120,000, the future value annuity factor is 21.664 and the interest rate is 4.50 percent per year. Which of the following are you <i>least likely</i> to use for computing the future value? A) Annuity amount. B) Future value annuity factor. C) Interest rate.		

28 You have been making the following deposits on the last day of every month.

Month	Amount
January	USD1,500
February	USD2,000
March	USD2,000
April	USD2,500
May	USD3,000
June	USD1,000

the interest rate is 6 percent compounded monthly, how much money will you have on the 1st of July?

- A) USD12,000.
- B) USD12,148.
- C) USD13,903.

29 Liam Punter purchases a contract from an insurance company that promises to pay USD600,000 after 8 years with a 5 percent annual return. How much money should Punter *most likely* invest today?

- A) USD406,104.
- B) USD408,350.
- C) USD886,473.

30 Your client is evaluating between the following two retirement options:

- Option 1: Pays a lump sum of USD2.5 million today.
- Option 2: A 25-year annuity at USD180,000 per year starting today.

If your client's required rate of return is 6 percent per year, which option must he choose based on a higher present value ?

- A) Option 1 as it has a greater present value.
- B) Option 2 as it has a greater present value.
- C) Either of the two options as they have an equal present value.

31 A security pays USD2500 at the start of each quarter for 3 years. Given that the annual discount rate compounded quarterly is 8%, which of the following is *most likely* to be the worth of the security today?

- A) USD18,840.
- B) USD26,438.
- C) USD26,967

32 Ms. Clara Johnson is buying a house. She expects her budget to allow a monthly payment of USD1500 on a 25-year mortgage with an annual interest rate of 6.8 percent. If Johnson makes a 10 percent down payment, the most she can pay for the house is closest to:

- A) USD216,116.
- B) USD240,129.
- C) USD264,706.

33 A paper supplier forecasts outgoing payments of amount USD360, USD550, and USD400 at the end of months January, February, and March respectively. Assuming today is 1st January, and the annual interest rate is 2.4 percent, the minimum amount of money needed in an account today to satisfy these future payments is *closest* to:

- A) USD1,287.
- B) USD1,305.
- C) USD1,396.

Question	Q-Code: L1-QM-TVOM-033	LOS e	Section 6
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- 34 A tenant pays rent of USD1,200 monthly due on the first day of every month. If the annual interest rate is 8 percent, the present value of a full year's rent is *closest* to:
- A) USD13,333.
 - B) USD13,795.
 - C) USD13,887.

Question	Q-Code: L1-QM-TVOM-049	LOS f	Section 6
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- 35 A 26-year-old is using the following information to plan his retirement:

Current age	26
Expected Retirement Age	65
Life Expectancy	90
Current Annual Expenditures	USD 40,000
Expected Inflation Rate of current expenditures until retirement	2%
Expected return on investment	7%

e assumes his consumption expenditure will increase at a rate of 2%, the rate of inflation, until he retires. Upon retiring, he will have end-of-year expenditures equal to his consumption expenditure at age 65. The minimum amount that he must accumulate by age 65 in order to fund his retirement is *closest* to:

- A) USD989,300.
- B) USD1,009,080.
- C) USD1,220,390.

Question	Q-Code: L1-QM-TVOM-051	LOS f	Section 6
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- 36 Mr. Das Gupta is planning to save for his daughter's college tuition fund. His daughter is currently 11 years old and is expected to start college after 6 years. The expected annual fee for a four-year program is USD45,000. Assuming an expected rate of return on investment of 5%, the minimum amount that he must accumulate over the next 6 years in order to fund his daughter's college tuition fund is *closest* to:
- A) USD160,000.
 - B) USD170,000.
 - C) USD180,000.

Question	Q-Code: L1-QM-TVOM-053	LOS f	Section 6
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- 37 Sally Smith is a pension fund manager. According to her estimates, retirees will be paid benefits worth USD0.75 million per year, starting 12 years from now. There will be a total of 20 payments. Given a discount rate of 8 percent, the present value of the payments today is *closest* to:
- A) USD2,924,191.
 - B) USD3,158,126.
 - C) USD7,363,610.

Question	Q-Code: L1-QM-TVOM-043	LOS e	Section 6
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- 38 A security pays USD150 per year in perpetuity. What is its present value today, given that the required rate of return is 4.75 percent ?
- A) USD316.

- B) USD3158.
- C) USD3185.

Question Q-Code: L1-QM-TVOM-054 LOS f Section 6

39 Bill Graham is planning to buy a security which pays a dividend of USD100 per year indefinitely, with the first payment to be received at $t = 4$. Given that the required rate of return is 10 percent per year compounded annually, how much should Graham pay today for the security?

- A) USD683.
- B) USD751.
- C) USD1,000.

Question Q-Code: L1-QM-TVOM-044 LOS e Section 6

40 A security will make the following payments:

Time Period	Dividend Amount (USD)
1	50
2	100
3	150
4	200
5	250

Given a discount rate of 9 per cent, the present value of the security is *closest* to:

- A) USD487.
- B) USD550.
- C) USD616.

Question Q-Code: L1-QM-TVOM-016 LOS c Section 7

41 Canadian Foods recorded an operating profit of USD2.568 million and USD5.229 million for 2012 and 2016 respectively. What was the compounded annual rate of growth of Canadian Foods' operating profits during the 2012-2016 period ?

- A) 16.30%.
- B) 18.50%.
- C) 19.50%.

Question Q-Code: L1-QM-TVOM-017 LOS c Section 7

42 In 2013, Bata had 81 shoe outlets across the country. But, by 2016, the company had to shut down 14 outlets. Which of the following *most likely* represents the growth rate of the number of outlets during this period?

- A) -6.10%.
- B) -4.63%.
- C) 6.53%.

Question Q-Code: L1-QM-TVOM-050 LOS f Section 7

43 Sandra Archer is planning for her retirement. She is 35 years old and expects to retire in the next 40 years. She expects to live for another 25 years after her retirement. Her current annual expenditures are USD54,000 and she expects them to increase at a rate of 3%, the rate of inflation, until she retires. Upon retiring, her end-of-year expenditures will be equal to her consumption expenditure at age 75. If the minimum amount that she can accumulate by age 75 is USD2 million, what is the *minimum* expected rate of return she must earn on her investment to maintain her consumption expenditure throughout her expected life after retirement?

- A) 7.29%.
- B) 7.58%.
- C) 7.87%.

Question Q-Code: L1-QM-TVOM-028 LOS d Section 7

- 44 How long will it take an investment of USD2,500 to grow three times in value to USD7,500? Assume that the interest rate is 6 percent per year compounded annually.
- A) 11.9 years.
 - B) 18.9 years.
 - C) 21.3 years.

Question Q-Code: L1-QM-TVOM-029 LOS d Section 7

- 45 Evan Hubbard estimates he needs USD100,000 to travel around the world. He plans to deposit USD800 every month starting one month from today to meet this goal. The interest rate is 7 percent compounded monthly. How many months will it take for Hubbard to achieve his goal?
- A) 95 months.
 - B) 225 months.
 - C) 250 months.

Question Q-Code: L1-QM-TVOM-036 LOS e Section 6

- 46 A consumer takes out a loan with monthly payments of €500 for a period of four years with first payment made today. Assuming an annual discount rate of 3.5%, compounded monthly, the present value of the loan is *closest* to:
- A) €22,038.74.
 - B) €22,365.36.
 - C) €22,430.59.

Question Q-Code: L1-QM-TVOM-037 LOS e Section 7

- 47 Andy Roberts is planning for his retirement and hopes to spend €70,000 per year for an anticipated 30 years in retirement. If he deposits €8,000 at the end of his working years and the interest rate is assumed to be 5% compounded annually, what is the *minimum* number of deposits he will need to make to fund his desired retirement?
- A) 29.
 - B) 42.
 - C) 50.

Question Q-Code: L1-QM-TVOM-034 LOS e Section 7

- 48 Chen Xiu wants to buy a house for which he needs to borrow USD200,000. If he takes out a 30-year fixed rate 6% mortgage, his scheduled monthly payments will be *closest* to:
- A) USD556.
 - B) USD1,000.
 - C) USD1,199.

Question Q-Code: L1-QM-TVOM-035 LOS e Section 7

- 49 Ms. Ling purchases an automobile using a loan. The amount borrowed is €44,000 and the terms of the loan call for the loan to be repaid over seven years using equal monthly payments with an annual nominal interest rate of 12% and monthly compounding. The monthly payment is *closest* to:
- A) €776.72.
 - B) €803.43.
 - C) €923.13.

Question Q-Code: L1-QM-TVOM-045 LOS e Section 7

- 50 Wak O'Neal plans to buy a car worth USD42,000 today. He is required to pay 15 percent as a down payment and the remainder is to be paid as a monthly payment over the next 12 months with the first payment due at $t = 1$. Given that the interest rate is 8% per annum compounded monthly, which of the following is most likely to be the approximate monthly payment ?
- A) USD3,105.
 - B) USD3,654.
 - C) USD3,921.

Question	Q-Code: L1-QM-TVOM-046	LOS e	Section 7
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- 51 Hank plans to purchase a USD100,000 house by making a down payment of USD15,000. For the remainder, he intends to take a 20-year fixed rate mortgage with quarterly payments. The first payment is due at $t = 1$. The current mortgage interest rate is 10 per cent compounded quarterly. Which of the following is *most likely* to be Hank's quarterly mortgage payment?
- A) USD2,337.
 - B) USD2,467.
 - C) USD2,726.

Question	Q-Code: L1-QM-TVOM-047	LOS e	Section 7
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- 52 An investor plans to buy a property worth USD200,000 for which he has agreed to 20 percent today as down payment. The remainder will be in the form of monthly payments over the next 15 years at 9 percent per year compounded monthly. Which of the following is *most likely* to be the monthly payment?
- A) USD1,137.
 - B) USD1,440.
 - C) USD1,623.

Question	Q-Code: L1-QM-TVOM-048	LOS f	Section 7
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- 53 John Anderson wants to save for his daughter's college tuition. He will have to pay USD50,000 at the end of each year for the four years that her daughter attends college. He has 8 years until his daughter starts college to save up for her tuition. Using a 7% interest rate compounded annually, the amount Anderson would have to save each year for 8 years is *closest* to:
- A) USD22,000.
 - B) USD18,500.
 - C) USD16,500.

Question	Q-Code: L1-QM-TVOM-052	LOS f	Section 7
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- 54 Mathew Jones plans to pay for his son's college education for 4 years starting 8 years from today. He estimates the annual tuition cost at USD40,000 per year, when his son starts college. The tuition fees are payable at the beginning of each year. How much money must Jones invest every year, starting one year from today, for the next seven years? Assume the investment earns 10 percent annually.
- A) USD13,365.
 - B) USD11,087.
 - C) USD22,857.

Question	Q-Code: L1-QM-TVOM-055	LOS f	Section 7
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- 55 Gerard Jones plans to save for his 5-year doctorate degree, which starts 6 years from now. The current annual expenditure is USD7,200 and it is expected to grow by 7 percent annually. Gerard will need to make the first payment 6 years from today. He identifies a savings plan that allows him to earn an interest of 8 percent annually. How much should Gerard deposit each year, starting one year from today? Assume that he plans to make 5 payments.
- A) USD8,370.
 - B) USD8,539.
 - C) USD8,730.