Department of Finance and Investment Management

Investment Management 3B

BLB3B01/IVM03B3

LAST ASSESSMENT OPPORTUNITY

November 2016

Time: 2½ Hours **Marks: 100**

Assessors: Mrs I O'Leary-Govender

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External moderator: Mr Elmar Gräter

INSTRUCTIONS:

1. This paper consists of **11** pages (including the front page)
2. Answer ALL questions.
   - **For questions 1 to 10 you are not required to justify your answer.**
   - **For all remaining questions, i.e., questions 11 to 40, you are required to justify your answer using calculations, diagrams and discussion where appropriate.**
   - **The mark allocated to each question is an indication of the level of difficulty.**
   - **Please note, there will be *<u>no principle marks given</u>* for these questions. Only the correct answer along with the correct justification, where necessary, will be given full credit.**
3. Show all calculations clearly, work to FOUR decimal places, & indicate final answers in correct units, i.e. percentage/years/currency etc.
4. Answers with Tippex and in pencil will not be marked.
5. Silent, non-programmable calculators may be used.
6. Make sure you hand in all the required pages.
7. <u>**NB!**</u> Only information on the answer sheets will be marked – rough work and answers anywhere else will not be marked.
8. **HAND IN EVERYTHING!**!

Question	Topic	Marks	Time
Section A	**MULTIPLE CHOICE QUESTIONS (*with justification)***	100	150 min

1. Which of the following statements about probabilities is most accurate? **[1]**

A. An outcome is the calculated probability of an event.

B. A conditional probability is the probability that two or more events will happen concurrently.

C. An event is a set of one or more possible values of a random variable.

2. The unconditional probability of an event, given conditional probabilities, is determined by using the: **[1]**

A. total probability rule

B. multiplication rule

C. addition rule

3. A price maker in the foreign exchange market is: **[1]**

A. a speculator who acts upon a subjectively expected exchange rate.

B. a large commercial bank quoting bid and offer rates.

C. a government agency which regulates trading and controls exchange rates.

4. A derivative contract: **[1]**

A. is based on the shape of the yield curve.

B. has no counterparty or default risk.

C. derives its value from an underlying asset.

5. If the exchange rate between the South African rand and the U.S. dollar is expressed in direct quotation from the South African perspective, then a rise in the exchange rate implies: **[1]**

A. appreciation of the U.S. dollar.

B. depreciation of the U.S. dollar.

C. appreciation of the South African rand.

6. Which of the following statements is *most likely correct*? **[1]**

A. A forward contract can be cash settled, settled through physical delivery, offset prior to expiration by entering into the opposite side of the original transaction and coming to an agreement with the counterparty to exchange another underlying asset at expiration.

B. A forward contract can be cash settled, settled through physical delivery, offset prior to expiration by entering into the opposite side of the original transaction.

C. A forward contract can be cash settled or settled through physical delivery.

7. The value (per share) of an investment company's assets minus its liabilities is called the? **[1]**

A. discount.

B. net asset value.

C. current market value.

8. Which of the following statements regarding ETFs (exchange traded funds) is *most likely* correct? Derivatives risk exposes an ETF to: **[1]**

A. tracking error risk and market risk.

B. market risk and counterparty credit risk.

C. counterparty credit risk and higher leverage.

9. For a plain-vanilla interest rate swap, which of the following statements is *least* accurate? **[1]**

A. notional principle is usually swapped at the beginning and end of the contract.

B. net interest payments are made on the settlement dates.

C. the term of the swap is referred to as its tenor.

10. Credit default swaps are: **[1]**

A. credit derivatives.

B. low risk instruments.

C. a form of insurance for borrowers.

11. If two events are mutually exclusive, the probability that they both occur together is? **[2]**

A. 0.5
B. 0
C. Cannot be determined from the information provided

12. For an American style put option, the buyer makes a profit when: **[2]**

A. Exercise Price > Premium
B. Exercise Price > Share Price
C. Exercise Price > (Share Price + Premium)

13. If the ZAR/USD exchange rate is 14.00ZAR/USD and the ZAR/GBP exchange rate is 18.00ZAR/GBP. What is the USD/GBP exchange rate? **[2]**

A. 0.7778USD/GBP
B. 1.2857USD/GBP
C. 1.0000USD/GBP

14. You are considering investing in a closed-end mutual fund with a net asset value of R20.75 where the share price is currently R19.90. You have decided that you will only invest in funds which you can buy into at a discount. What discount or premium is required? Will you invest in the fund? **[2]**

A. Discount is 4.096%; Yes
B. Premium is 4.271%; No
C. Discount=0%; No

15. Which one of the following strategies is least likely to be used by a hedge fund to increase leverage? **[2]**

A. Borrowing external funds
B. Margin borrowing
C. Pursuing arbitrage opportunities

16. Consider a quarterly-pay fixed for floating swap where X pays LIBOR and Y pay a fixed rate of 4%p.a. on a notional sum of $1,000,000. Currently LIBOR is 5%p.a. and at the end of 90 days LIBOR is 3%p.a. Which of the first statements regarding the first settlement date is *most accurate*? **[2]**

A. X makes a net payment of $2,500
B. Y makes a net payment of $2,500
C. Neither X nor Y makes a payment

17. You are given the following exchange rates:

Spot USD/AUD	0.5662
3-months Forward USD/AUD	0.5615

Calculate the USD/AUD 3-months forward spread in percentage terms. (Assume 30/360 year convention) **[2]**

A. -0.03%
B. -3.35%
C. -3.32%

18. Consider a long position in a JIBAR-based interest rate call option with a notional amount of R1 000 000 and a strike rate (exercise price) of 10.5%. If at expiration JIBAR is less than 10.5%, the call option buyer receives? **[2]**

A. R0
B. R1000000 x (10.5% - JIBAR)
C. R1000000 x (JIBAR – 10.5%)

19. Which of the following statements regarding the time value of an option is *most likely* true? **[2]**

A. Time value is positive at expiry.
B. Time value is 0 at expiry.
C. Time value is negative at expiry.

20. You buy a Standard & Poor's 500 Index futures contract at 1,200.40. The multiplier is 250. The margin is $21,000. The margin maintenance requirement is set at $17,250. If the contract closes out at 1,230.70, your percentage return on margin is? **[2]**

A. 35.71%
B. 36.07%
C. 36.55%

21. ABC Corporation’s capital structure is currently entirely equity based. ABC wants to alter this structure to include debt so that it has a 60/40, equity/debt split. ABC has a large asset base, a 25% operating profit margin, and is expecting its cost of debt to average around 8.5%. What impact will this new capital structure *most likely* have on ABCs Net Income (NI) and Return on Equity (ROE), respectively, if Earnings before Interest and Tax (EBIT) remains unchanged? **[3]**

A. NI: No change; ROE: Increase
B. NI: Decrease; ROE: Increase
C. NI: Decrease; ROE: Decrease

Use the following information to answer questions 22 and 23.

A firm can fall short or exceed its earnings forecast. The firm has a 40% chance of falling short of its earnings forecast. If the firm falls short of its earnings forecast there is a 60% chance that it will reduce its next dividend and if the firm exceeds its earnings forecast there is an 80% chance that it will increase its dividend.

22. The probability of the firm falling short of its forecast and reducing its dividend is *closest to*? **[3]**

A. 0.16
B. 0.24
C. 0.32

23. The probability that the firm has fallen short of its earnings forecast given that it announced a reduction in its next dividend is *closest to*? **[3]**

A. 0.24
B. 0.36
C. 0.67

24. Consider a South African commercial bank that wishes to take a two-year, fixed-rate loan in SA denominated in Rands (ZAR). The SA bank will fund the loan by issuing two-year fixed rate Certificates of Deposit (CDs) in the UK. What risks does the SA bank face and what type of swap would it enter in to? **[3]**

A. GBP appreciation against ZAR; cross currency swap.
B. Decrease in UK interest rates; interest rate swap.
C. ZAR appreciation against GBP; currency swap.

25. If a Forex dealer quotes you a 90-day USD/ZAR Forward at 13.7405 and the current USD/ZAR spot rate is 13.4583, what would the USD LIBOR rate approximately be if the ZAR JIBAR rate is currently 10.5% for a 90-day period? **[3]**

A. 1.93%

B. 2.07%

C. 2.64%

26. A PrimeBank December 120 American style call option contract is currently trading at $10.50. At expiration, a PrimeBank share is selling for $123. Calculate the intrinsic value of a long call. Can the call option be exercised and if yes, what would the profit/loss be? **[3]**

	Intrinsic Value	Exercise Option	Profit/Loss
A.	$0	No	+$10.50
B.	$3	Yes	-$7.50
C.	-$3	Yes	-$13.50

27. A closed-end fund: **[3]**

A. has a price determined by the net asset value (NAV).

B. has a price determined by supply and demand, regardless of net asset value (NAV).

C. is traded in the primary market but not in the secondary market.

28. There is a single stock futures contract for 100 shares of Caterpillar stock. The share is selling for $74.65, up $0.65, and the futures price closed at $74.55, up $0.42. If you own 100 shares of Caterpillar stock and you are long one futures contract with a margin of R2 000, your return on your shares and you future is *closest* to? **[3]**

	Shares	Future
A.	0.9%	2.0%
B.	2.1%	1.0%
C.	1.0%	2.2%

29. In the CURRENCY TRADING section of *The Wall Street Journal*, the following appeared under the heading OPTIONS:

Philadelphia Exchange	Puts	
Swiss Franc 62,500 Swiss Franc-cents per unit	Vol.	69.33 Last
68 May	12	0.30
69 May	50	0.50

Which combination of the following statements are true? **[3]**

(1) The time values of the 68 May and 69 May put options are respectively .30 cents and .50 cents.
(2) The 68 May put option has a lower time value (price) than the 69 May put option.
(3) If everything else is kept constant, the spot price and the put premium are inversely related.
(4)The time values of the 68 May and 69 May put options are, respectively, 1.63 cents and 0.83 cents.
(5) If everything else is kept constant, the strike price and the put premium are inversely related.

A. 1, 2, and 3
B. 2, 3 and 4
C. 3 and 4

30. Using the information provided, the all-in forward rate for the USD/ZAR is *closest to*? **[3]**

USD/ZAR	14.2385
6-month USD Libor (180 days)	1.25%
6-month ZAR Jibar (180 days)	8.5%

A. 14.7432ZAR/USD

B. 14.7445ZAR/USD

C. 14.7514ZAR/USD

31. An analyst is discussing futures and options and says the following:

"*There is no difference between entering into a long forward contract when the forward price is R100 and taking a long position in a call option when the exercise price is R100.*"

What is your view? **[4]**

A. Agree

B. Disagree

32. Consider the following information:

Call A: 22.5 call with premium of R2.60

Call B: 25.5 call with premium of R0.30

The underlying share price (S) is currently R 23 per share. All of the following statements are incorrect *except:* **[4]**

A. Call A and Call B are in-the-money and time value of Call A < time value of Call B.

B. Call A and Call B are out-of-the-money and time value of Call A > time value of Call B.

C. Call A is in-the-money, Call B is out-of-the-money and the time value of Call A > time value of Call B.

33. You can hedge or speculate in cross currency exchange rates by using two futures contracts. For example, by being long the USD **in a** GBP to USD contract and short the USD **in a** USD to JPY, you can take a position in the cross rate of GBP **to** JPY. The GBP contract is for GBP 62 555 and the futures price closed at $ 1.8087, up $ 0.0201. The JPY contract is for JPY 12 500 000 and the futures closed at $ 0.008950, up $ 0.000078. The impact on your cross currency position is? **[4]**

A. Net Gain = $281.25

B. Net Loss = $281.25

C. No gain or loss

Use the following information to answer questions 34 and 35.

Background:
Janine Phelps, CFA at LC Property, is investigating the merits of investing in an apartment building. As such, she is dealing with several issues concerning:

(A) The net present value and IRR of the proposed investment, and

(B) The estimated taxes due on a future sale of the property.

She has gathered the following cash flow estimates, and she has conducted a partial flow of steps to calculate the after-tax equity reversion (ATER) required for the estimated tax calculation.

A. Information for NPV and IRR calculations:

After-Tax Cash Flows	
ATCF(1)	$ 43 600
ATCF(2)	$ 45 000
ATCF(3)	$ 47 500
ATCF(4)	$ 49 000
After-Tax Equity Reversion (Investor Terminal Value)	
ATER	$470 000
Equity Investment	$415 000
Required Return	12%

B. Preliminary Estimates for Future Tax Calculations

Sales Price @ end of year 4		$800 000	
(Less: selling expenses @ 5%		$?	(b)
Net sales price		***$?***	***(c)***
Less: Adjusted basis			
Purchase price	$550 000		(d)
Less: Accumulated depreciation	-$50 000	$500 000	(e)
Gain realized on sale		***$?***	***(f)***
Gain realized on sale		$?	(f)
Less depreciation recaptured		$50 000	
Capital gain recognized on sale		***$?***	***(g)***
Tax on depreciation recapture @25%		$?	(h)
Tax on capital gain recognized on sale @20%		$?	(i)
Taxes due on sale:		***$?***	

34. The net present value (NPV) and internal rate of return (IRR) of the proposed apartment building are closest to? **[4]**

A. $15,669 and 10.97%
B. $23,446 and 13.78%
C. $27,669 and 12.14%

35. The *total* estimated taxes due on sale of the apartment building is closest to? **[4]**

A. $39,426
B. $48,830
C. $54,500

36. The potential profits from writing a covered call position on a share are? **[4]**

A. Limited to the premium.
B. Greater than the potential profits from owning the share.
C. Limited to the premium plus share price appreciation up to the exercise price.

37. Suppose your fund's project value at the end of 2016 is R10 million. At the end of 2016 you intend to withdraw R500 000 for another investment opportunity but you wish to leave your original R10 million intact. You have three investment options for your fund:

	X	**Y**	**Z**
Expected Return	8%	10%	12%
Standard Deviation	12%	15%	14%

Which is the most are you most likely to choose? (*Assume the returns are normally distributed*) (*Hint*: Roy's Safety First Criterion) **[4]**

A. Portfolio X
B. Portfolio Y
C. Portfolio Z

38. You have an international client who is interested in investing in South African corporate bonds. Currently, there is a high likelihood that South Africa's sovereign credit rating will be downgraded and this could affect the credit rating of the local corporates. If the probability of a South African corporate bond defaulting within a year increases after the downgrade to 10% and you have a selection of 10 corporates whose bonds are of interest to your investor, what is the probability that at least 2 of the 10 corporate bonds will default within the next year? (*Assume that the bonds are independent of each other*) **[4]**

A. 26.39%

B. 61.26%

C. 65.13%

39. You are considering the possibility of investing some money into electronically traded funds (ETFs). You have been told that recently a study was done that looked at the performance of ETFs relative to mutual funds. An analysis was done which tested the hypothesis that the average return over a 5-year period for ETFs was significantly different from the average return for the same period for mutual funds. You are told that the test had a Type I error of 5% and a p-value of 3.5%. The analyst carrying out the test has concluded that this means that the performance of ETFs is superior to mutual funds. What is your conclusion based on the information provided? **[4]**

A. Agree

B. Disagree

40. You own an MTN share which you bought for R115. There is a put option available on MTN shares with an exercise price of R95 and a premium of R5. There is also a call option available on MTN shares with an exercise price of R135 and a premium of R5 as well. If you bought the MTN put option and sold the MTN call option you could cap your profits/losses at? **[4]**

A. 8.70%%

B. 13.04%

C. 17.39%