

**INV2601**

(481907)

May/June 2011

INVESTMENTS: AN INTRODUCTION

Duration 2 Hours

40 Marks

EXAMINERS :

FIRST

SECOND

MS JM NJUGUNA

MS M DOWELANI

Use of a non-programmable pocket calculator is permissible.

This paper consists of 17 pages including 4 sheets for rough work (pp 14-17) and the instructions for completing a mark reading sheet. All 40 questions must be answered on a mark reading sheet.

Indicate your student number on the mark reading sheet.

Unique number: INV2601 481907

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TURN OVER

USE FOUR DECIMAL PLACES IN YOUR CALCULATIONS AND ROUND OFF YOUR ANSWER TO TWO DECIMAL PLACES WHERE APPLICABLE

- 1 The most important decision in creating wealth is to decide upon
 - 1 Asset allocation
 - 2 Diversification
 - 3 Correlation
 - 4 External efficiency

- 2 The annual holding period yield of an investment that was held for five years is 4.56%. The ending value of this investment was R1 500. Calculate the beginning value
 - 1 R1 200.00
 - 2 R1 434.58
 - 3 R1 568.40
 - 4 R1 875.00

- 3 You short sell 500 shares of Venture Limited at a market price of R42.50. Your maximum possible loss is
 - 1 Zero
 - 2 R10 625
 - 3 R21 250
 - 4 Unlimited

- 4 Which one of the following orders is most useful to short sellers who want to limit their potential losses?
 - 1 Limit order
 - 2 Market order
 - 3 Stop buy order
 - 4 Stop loss order

TURN OVER

- 5 Which weighting scheme does the JSE Actuaries All Share Index (JSE ALSI) represent?
- 1 Equally weighted series
 - 2 Market value weighted series
 - 3 Price weighted series
 - 4 Volume weighted series
- 6 Lebogang Godi is an investor who wishes to construct a portfolio consisting of a 30% allocation of a share index and a 70% allocation of a risk free asset. The return on a risk free asset is 8% and the expected return of the share is 15%. The variance of the share index is 100. Calculate the expected standard deviation of the portfolio.
- 1 3.00%
 - 2 5.60%
 - 3 16.80%
 - 4 30.00%
- 7 Changes in the slope of the security market line are caused by changes in the
- 1 Beta
 - 2 Standard deviation
 - 3 Rate of inflation
 - 4 Market premium
- 8 The capital asset pricing model (CAPM) links together
- 1 Return and total risk
 - 2 Undiversifiable risk and diversifiable risk
 - 3 Undiversifiable risk and return for all assets
 - 4 The market return and all traded securities

- 9 You purchased a 10% coupon bond, with a par value of R1 000, one year ago that now has 6 years remaining until maturity. At the time of purchase, the yield to maturity was 8% compounded quarterly. Calculate the amount that you paid for this bond one year ago.
1. R1 092.46
 2. R1 106.41
 3. R1 104.13
 4. R1 194.57
- 10 Michael Ferreira will start making R10 000 equal annual beginning of year deposits five years from now for a period of ten years at an interest rate of 9% compounded quarterly. Determine how much this investment is worth today?
1. R167 852.40
 2. R171 629.08
 3. R261 935.22
 4. R267 828.76
- 11 Anglo Diamond Limited has a current price of R15 and an expected dividend in the next year of R2.50. It also has a dividend payout of 40% and a return on equity (ROE) of 30%. Given its risk, you have a required rate of return for the share of 27%. Determine the expected rate of return and whether the share is overvalued or undervalued.
1. 12.00% overvalued
 2. 16.67% undervalued
 3. 28.67% overvalued
 4. 34.67% undervalued
- 12 A company just paid dividends of R1.00 per share. Assume that the dividends will grow by 20% per year during the next two years. After that, growth is expected to level off to a constant growth rate of 5% per year. The required rate of return is 8%. Calculate the share's intrinsic value using the two stage dividend growth model.
1. R42.36
 2. R43.21
 3. R45.56
 4. R50.40

- 13 Red Tie Corporation has a retention rate of 0.75 and a return on equity of 20%. It also has a required rate of return of 18% and an expected dividend (D_1) of R1.00. Calculate the intrinsic value per share of Red Tie Corporation using the constant growth model
- 1 R7.69
 - 2 R33.33
 - 3 R38.46
 - 4 R42.00
- 14 Firewall corporation has issued 6 000 000 ordinary shares and the firm's shares are trading at R7.25 each. The firm's total assets amount to R50 000 000 and total liabilities to R20 000 000 each. Investment trust companies similar to this firm normally trade at a premium of 30% to net asset value (NAV). Calculate the NAV and determine whether to buy or sell the firm's share
- 1 R5.00 buy
 - 2 R5.00 sell
 - 3 R6.50 buy
 - 4 R6.50 sell
- 15 Appreciation of a currency for a country can be attributed to which of the following aspects?
- 1 Rapid growth of income, lower inflation rates and higher domestic real interest rates relative to trading partners
 - 2 Rapid growth of income, higher inflation rate and lower domestic real interest rates relative to trading partners
 - 3 Slow growth of income, higher inflation rate and lower domestic real interest rates relative to trading partners
 - 4 Slow growth of income, lower inflation rates and higher domestic real interest rates relative to trading partners
- 16 Which one of the following provides examples of lagging economic indicators?
- 1 Average weekly initial claims for unemployment insurance, index of consumer expectations, contracts and orders for plants and equipment
 - 2 Change in consumer price index for services, average prime charged by banks and ratio of trade inventories to sales
 - 3 Personal income less transfer payments, industrial production and manufacturing and trade sales.
 - 4 New private housing units authorized by local building permits, share prices and money supply (M_2).

- 17 The following are characteristics that relate to a specific stage of the industry life cycle:
- Futures sales growth may be above normal
 - The rapid growth of sales and the high profit margins attract competitors to the industry, increasing supply and lowering prices.
 - Profit margins begin to decline to normal levels

To which stage do these characteristics belong?

- Pioneering development
- Rapid accelerating growth
- Mature growth
- Stabilization and market maturity

Use the table below to answer question 18.

Trichardt Ltd Income Statement Year ended 31-12- 2009	R'000s	Trichardt Ltd Balance Sheet at 31-12-2009	R'000s
Sales	55 000	ASSETS	
Cost of Sales	30 500	Fixed Assets	
Operating expenses	<u>18 500</u>	Net fixed assets	120 500
Operating income	6 000	Current assets	
Interest	<u>500</u>	Inventories	74 500
Profit before tax	<u>5 500</u>	Other current assets	<u>70 000</u>
Company tax rate	50%	TOTAL ASSETS	265 000
		EQUITY AND LIABILITIES	
		Owners Equity	155 000
		Liabilities	
		Long-term loans	95 500
		Current liabilities	<u>14 500</u>
		TOTAL EQUITY AND LIABILITIES	265 000

- 18 Calculate the inventory turnover ratio and the debt to equity ratio respectively.

	<u>Inventory turnover</u>	<u>Debt to equity</u>
1	0.41x	70.97%
2	0.74x	61.61%
3	1.35x	9.35%
4	2.44x	41.51%

- 19 Based on the DuPont model, a firm's return on equity (ROE) does not depend on which of the following components?
- 1 Asset use efficiency
 - 2 Financial leverage
 - 3 Capital employed
 - 4 Operating efficiency
- 20 (i) shares are shares with low beta regardless of the nature of the company While
(ii) companies have management capability and the opportunity to undertake investment projects that produce a rate of return greater than their weighted average costs of capital
- | <u>(i)</u> | <u>(ii)</u> |
|---------------|-------------|
| 1 Speculative | cyclical |
| 2 Growth | defensive |
| 3 Cyclical | speculative |
| 4 Defensive | growth |
- 21 Long Hill Limited retains 50% of its earnings which are R5 a share this year It earns a ROE of 20% Assume a beta of 1.2, a risk free rate of 8% and a market return of 12% How much would you pay for Long Hill Limited on the basis of the earnings multiplier model?
1. R34.70
 - 2 R38.19
 - 3 R89.30
 - 4 R98.23
- 22 Which of the following is not an assumption of the Dow Theory?
- 1 Primary trends have three phases
 - 2 The price confirms the trend
 - 3 The averages discount everything
 - 4 The market is made up of three trends

23 A zero coupon bond has a par value of R100 000 with a maturity of 25 years and a yield to maturity of 14% compounded semi-annually. Calculate the current value of the bond.

- 1 R3 394 78
- 2 R3 779 02
- 3 R100 000 00
4. R196 605 22

24 Calculate the yield to call of an 8% semi-annual paying bond with a par value of R1 000. The bond matures in 20 years, has a market price of R828 41 and a yield to maturity of 10%. The bond is callable by the issuer in 12 years at a call price of R860.

- 1 9 72%
- 2 9 83%
- 3 10 00%
- 4 10 55%

25 Assume that you purchase a 4 year R1 000 par value bond, with a 10% coupon and yield of maturity of 16%. It also has a market price of R832 11. After you purchase the bond, the one year reinvestment rates are as follows.

Year 1	20%
Year 2	15%
Year 3	10%
Year 4	5%

Calculate the realized compound or horizon yield, if you hold the bond to maturity and interest is paid annually.

1. 4.70%
- 2 8.92%
- 3 14.96%
- 4 16 12%

Using the table below to answer question 26.

Bond	Maturity (months)	Annual coupon (%)	Price	Yield to maturity (%)
A	6	8	R98 50	10
B	12	10	R99 20	12

26 Determine the 12-month spot rate using the bootstrapping method. All bonds have a face value of R100 and semi-annual coupon payments.

- 1 5.43%
- 2 5.47%
- 3 10.86%
- 4 10.94%

27 Determine the bond with the **greatest** interest rate risk.

- 1 A 2% coupon, 20 year bond with a yield to maturity of 8%
- 2 A 10% coupon, 10 year bond with a yield to maturity of 6%
- 3 A 10% coupon, 15 year bond with a yield to maturity of 8%
- 4 A 12% coupon, 25 year bond with a yield to maturity of 10%

28 A 20 year, 5% semi-annual coupon bond (R1 000 par value) is priced at a yield to maturity of 7%. The yield changes by 100 basis points. The duration of the bond is 11.53 and the convexity of the bond is 93.07. Calculate the total effects on price from the change in the yield to maturity.

	<u>% Price increase</u>	<u>% Price decrease</u>
1.	10.60%	12.46%
2.	11.53%	11.53%
3.	12.46%	10.60%
4.	20.84%	-2.22%

29. A 6-month futures contract is entered into on a non-dividend paying share with a market price of R105. The theoretical futures price was calculated to be R102. Determine the appropriate arbitrage strategy that will earn an arbitrage profit.

- 1 Buy futures, sell spot and invest money.
- 2 Buy futures, buy spot and borrow money.
- 3 Sell futures, buy spot and borrow money.
- 4 Sell futures, buy spot and invest money.

TURN OVER

30. An increase in the strike price will (i) . . . the value of a call option and . . . (ii) . . . the value of a put option.

(i) (ii)

1. increase increase
2. increase decrease
3. decrease decrease
4. decrease increase

31. Susan Rabie bought shares of Hollard Corporation, it has a market price of R75 and a strike price of R60. She also bought a call for a premium of R3. Calculate the breakeven value and profit for the call holder, if the market price increases to R80.

	<u>Break even</u>	<u>Profit</u>
1	R57	R23
2	R60	R20
3	R63	R17
4	R75	R5

32. A put option on a share is currently selling for R65. The put option is in-the-money by R3. What is the strike price of the put option?

1. R62
2. R65
3. R68
4. R72

33. A European call option and put option on the shares of Fitch Investments Ltd both have a strike price of R40 and a time to expiration of 3 months. The call option trades at R5 and put option trades at R1.50. The risk free rate is 12% per annum and the current share price is R45. Calculate the arbitrage profit that will be realized.

1. R2.62
2. R3.30
3. R3.70
4. R9.62

34. Calculate the lower bound price of a 6-month European put option on a non-dividend paying share when the share is currently trading at R200, the strike price R210 and the risk free rate of interest is 8% per annum
- 1 $\geq -R2.07$
 - 2 $\geq R2.07$
 - 3 $\geq R200.00$
 - 4 $\geq R202.07$
35. A positive delta value indicates that the option's price moves in the same direction as the underlying share. It comprises of a . . .(i) . . . call and a . . . (ii) . . . put
- | | <u>(i)</u> | <u>(ii)</u> |
|---|------------|-------------|
| 1 | long | long |
| 2 | long | short |
| 3 | short | short |
| 4 | short | long |
36. Which option trading strategy entails insuring your stock position on the downside while still enjoying the upside potential?
- 1 Covered call
 - 2 Straddle
 - 3 Bull and bear spreads
 - 4 Protective put
37. A portfolio is made up of share M and share N. Share M has an expected return of 11%, a standard deviation of 7% and a weight of 40% in the portfolio. Share N has an expected return of 18%, a standard deviation of 13% and a weight of 60% in the portfolio. The correlation coefficient of share M and N is 0.50. Calculate the expected return of the portfolio
- 1 7.60%
 - 2 9.51%
 - 3 10.60%
 - 4 15.20%

- 38 The table below reflects the rates at which two different companies pay interest on loans

	Fixed rates	Floating rates
Company P	5.60%	10 20%
Company Q	7 20%	10 80%

Determine the comparative advantage that will be shared by both parties should they enter into a swap agreement with an intermediary netting 0 50% per annum. Assume that Company P requires a fixed rate loan and Company Q a floating rate loan. Also, calculate the effective interest rate owed by Company P and Company Q respectively with this swap transaction.

<u>Advantage</u>	<u>Company P</u>	<u>Company Q</u>
1 0 20%	4 75%	9.95%
2 0 20%	6 45%	11 65%
3 0 50%	5 35%	10 55%
4 0 50%	5.85%	11 05%

- 39 Lucy Chang is a fixed income portfolio manager who intends to choose an active management strategy that anticipates the changes in relationships within various bond market sectors. Which active management strategy will Lucy choose from the ones listed below?

- 1 Interest rate anticipation
2. Credit analysis
3. Yield spread analysis
- 4 Bond swaps

40 Evaluate the performance of portfolios X and Y according to the Jensen measure

Portfolio	Average rate of return	Standard deviation	Beta
X	25%	8%	0.7
Y	28%	14%	1.2
Market Index	16%	4%	

Assume a risk free rate of return of 6%. Which one of the following statements indicated below is correct?

- 1 Portfolio X has an excess return of 12%
- 2 Portfolio X has an excess return of 19%
- 3 Portfolio Y has an excess return of 12%
- 4 Portfolio Y has an excess return of 22%

TOTAL:

[40 MARKS]

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PAGE FOR ROUGH WORK

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PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT e.g. PSY100-X
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6	6	6	6	6	6	6	6
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INITIALS AND SURNAME
 VOORLETTERS EN VAN

3

DATE OF EXAMINATION
 DATUM VAN EKSAMEN

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- MARK LIKE THIS
- CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
- ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
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- CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
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BELANGRIK

- GEBUIK SLEGS N HB POTLOOD OM HIERDIE BLAD TE VOLTOOI
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PART 2 (ANSWERS/ANTWOORDE) DEEL 2

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