



**INV2601** ( 473505)  
**MNF2034** ( 471235)

May/June 2010

**INVESTMENTS: AN INTRODUCTION**

Duration 2 Hours

40 Marks

**EXAMINERS**  
**FIRST**  
**SECOND**

MS JM NJUGUNA  
 MS E BOTHA

Use of a non-programmable pocket calculator is permissible

This paper consists of 14 pages including 4 sheets for rough work (pp 11-14) 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    **473505**  
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Hierdie vraestel bestaan uit 14 bladsye ingesluit 4 velle papier vir rofwerk (pp 11-14) en die instruksies vir die voltooiing van 'n merkleesblad. Al 40 vrae moet op 'n merkleesblad beantwoord word.

Toon u studentnommer en die unieke nommer op die merkleesblad aan

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**HIERDIE VRAESTEL IS DIE EIENDOM VAN DIE UNIVERSITEIT VAN SUID AFRIKA EN ONDER GEEN OMSTANDIGHEDEN MAG 'N KANDIDAAT DIT BEHOUD OF UIT DIE EKSAMENLOKAAL NEEM NIE.**

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**NB: VOLTOOI ASSEBLIEF DIE BYWONINGSREGISTER OP DIE AGTERBLAD, SKEUR AF EN OORHANDIG AAN DIE TOESIGHOUER.**

- 1 The beginning value of an investment is R1 200 After 4 years the ending value is R1 540 Calculate the holding period yield (HPY) of the investment

1. 5.11%
2. 6.44%
3. 13.28%
4. 22.08%

- 2 The following information relates to the share of Sun Ltd

Possible Outcomes	Probability (%)	Return (%)
Pessimistic	30	10
Most Likely	50	15
Optimistic	20	18

Calculate the Coefficient of variation (CV) of Sun Ltd

- 1 0.206
  - 2 0.604
  - 3 0.782
  - 4 1.660
- 3 On April 1, you bought 100 shares at R75 a share and a year later you sold them at R82 a share During the year, you received dividend of R3 per share Assuming the rate of inflation during the year is 5% Calculate the real rate of return on this investment

- 1 4.13%
- 2 6.44%
- 3 7.93%
- 4 11.76%

- 4 Identify the financial market that deals with the Over-The-Counter (OTC) trading of listed shares by brokers and investors to trade shares that are either suspended on the exchange or while the exchange is closed

- 1 Primary Market
- 2 Secondary Market
- 3 Third Market
- 4 Fourth Market

- 5 Which means of measurement is used in calculating risk in the Security market line (SML)?

- 1 alpha
- 2 beta
- 3 correlation coefficient
- 4 standard deviation

- 6 The Markowitz efficient frontier represents those set of portfolios (of risky investments) that have the (a) returns for every given level of risk, or the (b) risk for every level of return

	(a)	(b)
1	Maximum	Maximum
2	Maximum	Minimum
3	Minimum	Maximum
4	Minimum	Minimum

- 7 Portfolio A and B consists of the following assets

Asset	PORTFOLIO A		PORTFOLIO B	
	Proportion	Beta	Proportion	Beta
1	0.1	1.65	0.1	0.85
2	0.3	1.00	0.1	1.00
3	0.2	1.30	0.2	0.65
4	0.2	1.10	0.1	0.75
5	0.2	1.25	0.5	1.05

Calculate the beta of Portfolio A and B respectively

	Portfolio A	Portfolio B
1	1.195	0.915
2	1.260	0.860
3	1.815	0.980
4	2.645	0.795

- 8 An analyst has gathered the following information

Expected return on the market = 15%

Risk-free rate = 8%

Estimated rate of return of Copen Ltd = 20%

Beta of Copen Ltd = 1.35

Based on the above-mentioned information, which of the following statements is correct?

The Copen Ltd share is

- 1 Overvalued by 2.55%
- 2 Overvalued by 5%
- 3 Undervalued by 2.55%
- 4 Undervalued by 5%

- 9 Calculate the beginning of year payments that would be necessary to amortize a R15 000 loan over 6 years at an 8% annual interest rate

- 1 R1 598.28
- 2 R3 004.38
- 3 R3 244.73
- 4 R23 803.11

- 10 Gold Resources Ltd has a required rate of return of 10%. They invest R20 000 with ABC capital (cash outflow) and can earn the following annual cash flows over the next 5 years

<u>Years</u>	<u>Cash inflow</u>
1	R4 000
2	R7 000
3	R9 000
4	R12 000
5	R16 000

Calculate the NPV of the investment and determine the investment decision that should be taken as a result

	<u>NPV</u>	<u>Investment decision</u>
1	-R34 314	Investment is not acceptable
2	-R14 314	Investment is not acceptable
3	R14 314	Investment is acceptable
4	R54 314	Investment is acceptable

- 11 Bombela Consortium Ltd has a dividend payout of 30% and its ROE is 25%. Calculate the growth rate of the firm

1	7.50%
2	17.50%
3	25%
4	30%

- 12 Green Environ Ltd issued 10% preference share at R40 each. Determine the intrinsic value of a preference share assuming a 5% required rate of return

1	R4
2	R20
3	R40
4	R80

- 13 The constant rate of dividend growth for ZA Investments is 10%. The firm is expected to pay an annual dividend ( $D_1$ ) of R2.00 next year. The required rate of return ( $k_e$ ) equals 15%. Calculate the value of the share using the constant growth model

1	R13.33
2	R20
3	R25
4	R40

- 14 Bronze Ltd currently retains 80% of its earnings which are R5 a share this year. It earns a ROE of 20%. Assuming a required rate of return of 18%, how much would you pay for Bronze Ltd on the basis of the earning multiplier model?

1	R5.80
2	R40
3	R50
4	R58

- 15 An expansive monetary policy leads to
- 1 Raised reserve requirement, selling previously bought government securities and increase in the repo rate
  - 2 Raised reserve requirement, selling previously bought government securities and decrease in the repo rate
  - 3 Reduced reserve requirements, purchasing additional government securities and decrease in the repo rate
  - 4 Reduced reserve requirements, selling previously bought government securities and increase in the repo rate
- 16 The risk associated with the differentiation competitive strategy is that
- 1 Higher production costs could result due to small volume
  - 2 Competitors may imitate the technology
  - 3 The firm may be at the mercy of powerful suppliers
  - 4 Customers tastes may change and wipe out the competitive advantage
- 17 Based on the information provided in the table below Calculate the current asset ratio and ROE of Grand Canyon Ltd respectively

<b>Grand Canyon Ltd Balance Sheet December 31, 2009 (R'000)</b>			
Cash	200	Accounts payable	205
Receivables	245	Notes payable	425
Inventory	625	Other current liabilities	115
Total current assets	1 070	Total current liabilities	745
Net non-current assets	1 200	Long-term debt	420
		Common equity	1 105
<b>TOTAL ASSETS</b>	<b>2 270</b>	<b>TOTAL LIABILITIES AND EQUITY</b>	<b>2 270</b>

<b>Grand Canyon Ltd Income Statement For the year ended December 31, 2009 (R'000)</b>	
Sales	2 400
Cost of goods sold	1 834
Gross profit	556
Selling expenses	175
General and administrative expenses	216
Earnings before interest and taxes (EBIT)	175
Less Interest expense	35
Earnings before taxes (EBT)	140
Less Taxes (30%)	42
<b>NET INCOME (NI)</b>	<b>98</b>

	<u>Current asset ratio</u>	<u>ROE</u>
1	0.60x	4.32%
2	0.60x	8.87%
3	1.44x	4.32%
4	1.44x	8.87%

- 18 Which one of the following would be a bearish signal to a technical analyst?
- 1 The debit balances in brokerage accounts increase
  - 2 The market shows poor performance when compared to individual stocks
  - 3 The yield differential between high-quality and low-quality bond increases
  - 4 The ratio of short sales by specialists to total short sales becomes abnormally low
- 19 A non-callable, AA-rated, 10-year zero-coupon bond is most likely to have
- 1 call risk
  - 2 default risk
  - 3 price risk
  - 4 reinvestment risk
- 20 A 6% coupon bond pays interest semi-annually and has a face value of R1 000. Its market price is R800 and is priced at a yield to maturity (YTM) of 8%. Calculate the current yield of the bond
- 1 3.75%
  - 2 5.00%
  - 3 7.50%
  - 4 10.00%
- 21 Calculate the yield to maturity of the following bond
- |                  |               |
|------------------|---------------|
| Time to maturity | 10 years      |
| Coupon rate      | 12% per annum |
| Coupon payments  | Semi-annual   |
| Face Value       | R1 000        |
| Market price     | R950          |
- 1 9.28%
  - 2 11.75%
  - 3 12.90%
  - 4 23.50%
- 22 Which statement **does not correctly** describe the relationship between the yield to maturity, coupon rate and price of a bond?
- 1 Coupon rate = yield to maturity, then price = face value
  - 2 Coupon rate > yield to maturity, then price > face value
  - 3 Coupon rate < yield to maturity, then price < face value
  - 4 Coupon rate > yield to maturity, then price < face value

23 The following information relates to bond X

Yield to maturity	15%
Coupon rate	10%
Coupon payments	Semi-annual
Time to maturity	2
Market price	R916 267
Face value	R1 000 000

Given a reinvestment rate of 20%, calculate the realised compound yield on bond X

- 1 10.52%
- 2 15.37%
- 3 19.78%
- 4 25.61%

24 An investor can decide to invest in (i) a 1-year, zero-coupon bond yielding a spot rate of 10% per annum or (ii) a 6-month, zero-coupon yielding a spot rate of 8% per annum, and then reinvest this return in a new bond. Calculate the forward rate 6 months from now that would leave an investor indifferent between these two options

- 1 10.90%
- 2 11.50%
- 3 12.02%
- 4 12.45%

25 A 12% coupon bond that pays interest semi-annually has an effective duration of 1.71. If the yield to maturity increases by 100 basis points (1%), what would be the approximate percentage change in price due to duration (duration effect)?

- 1 -1.71%
- 2 -0.20%
- 3 0.12%
- 4 1.71%

26 Calculate the convexity of the following bond taking into account a 1% change in the yield to maturity

Time to maturity	2 years
Coupon rate	10% per annum
Coupon payments	Semi-annual
Face Value	R1 000
Yield to maturity	14% per annum
Market price	R932.26

- 1 0.0193
- 2 0.0671
- 3 1.9303
- 4 3.8627

27 The following characteristics describe a derivative instrument

- It is privately traded
- It is traded in Over-The-Counter market (OTC)
- The contract is customised
- The risk of default is high

Which of the following derivatives is described above?

- 1 Forward contract
- 2 Futures contract
- 3 Option
- 4 Swap

28 Calculate the futures price of a 3-month futures contract on the share of Lansdowne Ltd when the price is R80 and the risk free rate is 7%

- 1 R80
- 2 R81 36
- 3 R82 75
- 4 R85 60

29 You wish to obtain an exposure to a specific share. Suppose that you buy a call with a R50 strike at R5 25. Calculate the effective price paid to the share if the share price at expiration is R45

- 1 R45 25
- 2 R50 25
- 3 R52 25
- 4 R55 25

30 A call option is an option contract that

- 1 gives the holder the obligation to buy a certain quantity of an underlying security
- 2 gives the holder the obligation to sell a certain quantity of an underlying security
- 3 gives the holder the right to buy a certain quantity of an underlying security
- 4 gives the holder the right to sell a certain quantity of an underlying security

31 The buyer of a put option will exercise the option at expiration when

- 1 the exercise price is less than the spot price
- 2 the exercise price equals the spot price
- 3 the exercise price is greater than the spot price
- 4 cannot be determined with the information given

32 Clint Westwood purchased a call option with a strike price of R50 for R5. At the same time, he purchased a put option on the same share with a strike price of R50 for R6. If the share is currently selling for R70 per share, calculate the profit or loss from this option strategy

- 1 -R11
- 2 R9
- 3 R14
- 4 R15

- 33 A 6-month European call option with a strike price of R40 sells at a premium of R5 00. It has a risk free rate of 8% and a current share price of R42. Using the put call parity, what is the equivalent value of the European put option

- 1 -R3 51
- 2 R1 49
- 3 R5 42
- 4 R8 51

- 34 A non-dividend paying share is currently trading at R120. This share price is expected to increase or decrease by R10 over the next three-month period. The delta of a 3-month European put option on this share with a strike price of R120 should be close to

- 1 -0 50
- 2 0 20
- 3 0 50
- 4 1 00

- 35 An investor wishes to construct a portfolio consisting of a 60% allocation to a share index and a 40% allocation to a risk free asset. The return on the risk free asset is 6% and the expected return on the share index is 15%. The standard deviation of returns on the share index is 8%. Calculate the expected standard deviation of the portfolio

- 1 0 00%
- 2 3 20%
- 3 4 80%
- 4 5 40%

- 36 Calculate the covariance of Securities A and B

Probability of occurrence	Rate of return-Security A	Rate of return-Security B
0 60	12%	6%
0 40	10%	9%

- 1 -1 44
- 2 -0 29
- 3 0 86
- 4 3 12

- 37 Shares M, N and O each have the same expected return and standard deviation. The following table shows the correlation between the returns on these shares

Correlation of Share Returns			
	Share M	Share N	Share O
Share M	+1 0		
Share N	-0 8	+1 0	
Share O	+0 1	+0 2	+1 0

Given these correlations, the portfolio from these shares having the **lowest** risk is a portfolio

- 1 Equally invested in shares M and N
- 2 Equally invested in shares M and O
- 3 Equally invested in shares N and O
- 4 Totally invested in shares O

MAY/JUNE 2010

- 38 Mr and Mrs Brown are both 49 years old. They have repaid their debts and have an income that exceeds their expenses. Their children have left home and they are now emphasizing active retirement planning by accumulation of an investment (retirement) portfolio. Their portfolio is focused on medium risk with portfolios weighting heavier in fixed income generating instruments. In which phase of the individual life cycle would Mr and Mrs Brown be classified?

- 1 Accumulation phase
- 2 Capital preservation phase
- 3 Consolidation phase
- 4 Spending phase

- 39 A portfolio manager would like to derive superior risk-adjusted returns. In order to achieve these returns, he should have (a) timing regarding market cycles and adjusting the portfolio accordingly, and consistently select (b) shares.

- |   | (a)      | (b)         |
|---|----------|-------------|
| 1 | inferior | overvalued  |
| 2 | inferior | undervalued |
| 3 | superior | overvalued  |
| 4 | superior | undervalued |

- 40 Evaluate the performance of the Magnum portfolio according to the Treynor measure.

Portfolio	Average rate of return	Standard deviation	Beta
Magnum	26%	0.22	1.25
Market Index	24%	0.20	

Assume a risk free rate of return of 15%. The Treynor measure is closest to

- 1 6.80%
- 2 7.56%
- 3 8.80%
- 4 9.20%

TOTAL:

[40 MARKS]

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**PART 1 (GENERAL/ALGEMEEN) DEEL 1**

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**INITIALS AND SURNAME**  
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**DATE OF EXAMINATION**  
**DATUM VAN EKSAMEN**

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**EXAMINATION CENTRE (E.G. PRETORIA)**  
**EKSAMENSENTRUM (BY PRETORIA)**

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 Vir gebruik deur eksamenopsiener

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- 1 GEBUIK SLEGS 'N HB POTLOOD OM HIERDIE BLAD TE VOLTOOI
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- 6 KONTROLEER DAT DIE UNIEKE NOMMER REG INGEVUL IS
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**PART 2 (ANSWERS/ANTWOORDE) DEEL 2**

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Specimen only

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- ② The paper number pertains only to first-level courses consisting of two papers

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 for the first paper and 

0	2
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 for the second. If only one paper, then leave blank

- ③ Fill in your initials and surname
- ④ Fill in the date of the examination
- ⑤ Fill in the name of the examination centre
- ⑥ WRITE the digits of your student number HORIZONTALLY (from left to right). Begin by filling in the first digit of your student number in the first square on the left, then fill in the other digits, each one in a separate square
- ⑦ In each vertical column mark the digit that corresponds to the digit in your student number as follows [-].
- ⑧ WRITE your unique paper number HORIZONTALLY  
NB Your unique paper number appears at the top of your examination paper and consists only of digits (e.g. 403326)
- ⑨ In each vertical column mark the digit that corresponds to the digit number in your unique paper number as follows: [-]
- ⑩ Question numbers 1 to 140 indicate corresponding question numbers in your examination paper. The five spaces with digits 1 to 5 next to each question number indicate an alternative answer to each question. The spaces of which the number correspond to the answer you have chosen for each question and should be marked as follows [-]
- ◆ For official use by the invigilator. Do not fill in any information here