

**INV2601**

(471294)

May/June 2012

INVESTMENTS: AN INTRODUCTION

Duration 2 Hours

40 Marks

EXAMINERS :

FIRST

MS JM NJUGUNA

SECOND

MS M DOWELANI

Use of a non-programmable pocket calculator is permissible**This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue.**

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

Indicate your student number and the unique number on the mark-reading sheet

Unique number: 471294

PLEASE COMPLETE THE ATTENDANCE REGISTER ON THE BACK PAGE, TEAR IT OFF AND HAND IT TO THE INVIGILATOR

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

TURN OVER

1. Which method refers to reducing the unsystematic risk of a portfolio by investing in various asset classes?
 - 1 Asset allocation
 - 2 Diversification
 - 3 Correlation
 - 4 Market timing

2. The required rate of return is the _____ return that an investor should accept from an investment to compensate him or her for deferring consumption
 - 1 acceptable
 - 2 minimum
 - 3 maximum
 - 4 relative

Use the information below to answer questions 3 and 4.

	Bear market	Normal market	Bull market
Probability	0.5	0.3	0.2
Share C	2%	8%	14%
Share D	5%	10%	16%

3. Calculate the expected return of share C and the standard deviation of share D.

- | | |
|----------|------------|
| E_C | σ_D |
| 1. 2.49% | 2.06% |
| 2. 2.95% | 3.49% |
| 3. 6.20% | 4.24% |
| 4. 8.70% | 6.20% |

4. The intrinsic value of any asset is determined by calculating _____
 - 1 the future value of the cash flows expected from an asset
 - 2 the present value of the cash flows expected from an asset
 - 3 the market price of the asset
 - 4 none of the above

TURN OVER

5 To which investment do the following characteristics belong?

- a Investors' money is pooled and invested on their behalf in various securities
- b. Freedom to invest in accordance with the investment strategy
- c Listed share on the Johannesburg Stock Exchange (JSE Limited).
- d. Price determined by supply and demand

- 1 Unit trusts
- 2 Hedge funds
- 3 Investment trusts
- 4 Participation bonds schemes

6 Which transactions entail orders to buy or sell securities at the best prevailing price? Investors usually indicate "sell at best" or "buy at best" for these transactions

- 1 Limit orders
- 2. Market orders
- 3. Special orders
- 4. Margin transactions

7. Maputo Limited expects its share price to rise from R50 to R54 over the next year. The beta of Maputo Limited is 0.8, the return on the market is 12%, and the risk-free rate of return is 7%. Calculate the required rate of return by using the capital asset pricing model (CAPM) and determine whether you will purchase or sell the share

- 1 8% buy
- 2 8% sell
- 3. 11% buy
- 4. 11% sell

8. Systematic risk is measured by (i) _____, while total risk, which is a combination of systematic and unsystematic risk, is measured by (ii) _____.

- | <u>(i)</u> | <u>(ii)</u> |
|-----------------------|--------------------|
| 1. beta | beta |
| 2. beta | standard deviation |
| 3. standard deviation | beta |
| 4. standard deviation | standard deviation |

TURN OVER

Use the information in the table below to answer question 9.

	Average rate of return	Standard deviation	Correlation coefficient with market index
Ocean's Eleven Limited	32%	12%	0.20
Market index	14%	4%	

9. Calculate the beta of Ocean's Eleven Limited

- 1 0.02
- 2 0.44
- 3 0.52
- 4 0.63

10. Calculate the growth rate over the period 2006 to 2010 of the following stream of cash flows

<u>Year</u>	<u>Cash flow</u>
2006	R500
2007	R700
2008	R800
2009	R880
2010	R940

- 1 12.30%
- 2 15.78%
- 3 17.10%
- 4 18.80%

TURN OVER

- 11 R20 000 is invested in a savings account for 15 years at 10% per annum compound interest, but the interest is calculated semi-annually. Calculate the end value of the investment.

- 1 R83 544.96
- 2 R86 438.85
- 3 R87 995.80
- 4 R93 082.73

- 12 Fin Pro Limited initially invested R100 000 with Soweto Corporation (cash outflow) and earned the following annual cash inflows over the next four years

<u>Year</u>	<u>Cash inflow</u>
1	R20 000
2	R40 000
3	R80 000
4	R100 000

What is the investment's internal rate of return (IRR)?

- 1 20.00%
- 2 25.60%
- 3 34.70%
- 4 71.00%

- 13 Value Invest Limited has a current dividend of R1.00 per share. It has a constant growth rate of 5% and a required rate of return of 9%. Calculate the intrinsic value of Value Invest Limited by using the constant growth model.

- 1 R11.11
- 2 R20.00
- 3 R25.00
- 4 R26.25

TURN OVER

14. Windhoek Corporation just paid dividends of R2 00 per share. Assume that the dividends will grow by 10% over 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 Windhoek Corporation's intrinsic value by using the two-stage dividend growth model.
- 1 R70.00
 - 2 R72.62
 - 3 R76.73
 - 4 R84.70
15. Protea Limited has issued 200 000 ordinary shares and the firm's shares are trading at R20 each. The firm's total assets amount to R4 500 000 and its total liabilities to R680 000. What is Protea Limited's net asset value (NAV)?
- 1 R10.00
 - 2 R19.10
 - 3 R20.00
 - 4 R22.50
16. Real GDP is determined by _____.
- 1 planned consumption and government expenditure
 - 2 planned consumption, government expenditure and net exports
 - 3 planned consumption, investment and net exports
 - 4 planned consumption, investment, government expenditure and net exports
17. Which of the following is **not** a determinant of competition as indicated by Michael Porter's industry forces model?
- 1 Bargaining power of buyers
 - 2 Bargaining power of suppliers
 - 3 Price pressure from complementary products
 - 4 Threat of entry from new competitors

Use the information in the tables below to answer question 18.

Port Elizabeth Limited			
Balance sheet at 31 March 2012 (R'000)			
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
TOTAL ASSETS	2 270	TOTAL LIABILITIES AND EQUITY	2 270

Port Elizabeth Limited	
Income statement for the year ended 31 March 2012 (R'000)	
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
NET INCOME (NI)	98

18. Calculate Port Elizabeth Limited's cash ratio and net profit margin

Cash ratio

1. 26.85%
2. 32.65%
3. 59.73%
4. 73.50%

Net profit margin

- 4.08%
- 21.73%
- 8.92%
- 32.15%

TURN OVER

19. Which of the following shares are high beta shares whose returns rise and fall sharply in bull and bear markets?
1. Cyclical shares
 2. Defensive shares
 3. Growth shares
 4. Speculative shares
20. Gold Rush Limited currently retains 40% of its earnings. It earns a return on equity (ROE) of 25%. Assume the required rate of return is 12%. Determine the price earnings (P/E_t) ratio of Gold Rush Limited on the basis of the earnings multiplier model
1. 12
 2. 20
 3. 25
 4. 30
21. In technical analysis, _____ levels indicate the price where the majority of investors believe that prices will move higher
1. support
 2. resistance
 3. lagging
 4. leading
22. When the coupon rate is greater than the discount or market rate, it results in the bond price being greater than the principal or face value. This issue would be referred to as a _____ bond issue
1. discount
 2. par value
 3. premium
 4. zero-coupon

23. Which risk refers to the effect of changes in the prevailing market rate on the return of a bond, and comprises of price risk and reinvestment risk?

- 1 Call risk
- 2 Interest risk
- 3 Liquidity risk
- 4 Yield curve risk

Use the following information to answer questions 24 and 25.

A bond that pays a 10% coupon payment rate annually on its R1 000 face value, matures in 15 years and is selling for R1 388.49

24. Calculate the expected yield to maturity of the bond

- 1 6 00%
- 2 8 00%
- 3 10 00%
- 4 15 00%

25. Calculate the current yield of the bond.

1. 7 20%
2. 10.00%
3. 10 80%
4. 14 26%

26. Which one of the following bonds will have the shortest duration?

- 1 A bond with a 15-year maturity and a coupon rate of 5%.
- 2 A bond with a 15-year maturity and a coupon rate of 7%.
- 3 A bond with a 30-year maturity and a coupon rate of 5%.
- 4 A bond with a 30-year maturity and a coupon rate of 7%

27. Three years ago, you purchased a bond for R950. The bond had three years to maturity, a coupon rate of 7%, paid annually, and a face value of R1 000. Each year you reinvested all coupon interest at the prevailing reinvestment rate shown in the table below. Today is the bond's maturity date. What is the realised compound yield on this bond?

Time	Prevailing reinvestment rate
0 (purchase date)	8%
1	7%
2	6%
3 (maturity date)	5%

- 1 8.80%
 - 2 15.22%
 - 3 15.41%
 - 4 17.57%
28. Calculate the equivalent 12-month spot rate of bond Z by using the bootstrapping method. All bonds have a face value of R100 and semi-annual coupon payments.

Bond	Maturity (months)	Annual coupon	Price	Yield to maturity
Y	6	6%	R100	6%
Z	12	9%	R101.90	7%

- 1 7.00%
 - 2 7.02%
 - 3 8.42%
 - 4 9.12%
29. Which one of the following is **not** a characteristic of a futures contract?

1. It is a public and highly standardised transaction
2. It is a private and customised transaction
3. The transaction takes place on a futures exchange
4. There is no possibility that the other party will default

30 Which one of the following is correct with regards to a European-style option?

- 1 The option can be exercised before its expiration date
- 2 The option can be exercised on or before its expiration date
- 3 The option can be exercised only on its expiration date
- 4 None of the above

31. A call option on a share is currently selling for R50 The call option is in the money by R2 What is the strike price of the call?

- 1 R44
- 2 R48
- 3 R50
4. R52

32. A put option on share Z with a strike price of R50 is priced at R4, while a call with a strike price of R50 is priced at R2 What are the maximum per share loss to writer (seller) of the put and the maximum per share gain to the writer (seller) of the call?

<u>Maximum loss to put writer</u>	<u>Maximum gain to the call writer</u>
1 R4	R48
2 R46	R2
3 R46	R4
4 R48	R46

33. Assume that at the end of four months, the price of a share currently trading at R100 will either move up or down by R5 Calculate the delta of an at-the-money European call option with a strike price of R92

1. 0.0
- 2 0.5
- 3 1.0
- 4 1.5

34. A nine-month European put option with a strike price of R100 sells at a premium of R5. It has a risk-free rate of 8% and a current share price of R92. Use the put-call parity to calculate the equivalent value of the European call option.

1. R2.39
2. R2.61
3. R3.00
4. R3.39

35. Which one of the following is a measure of an option's sensitivity to changes in the volatility of the underlying share?

1. Gamma
2. Theta
3. Rho
4. Vega

36. Which option trading strategy involves buying the underlying share and selling a call option in order to generate additional income while the underlying share price remains unchanged?

1. Bull spread
2. Covered call
3. Protective put
4. Straddle

37. Mr and Mrs Graham are both 30 years old. They intend to acquire assets during the early phase of their working careers. Debt management is an important aspect to them since their debt on most of the long-term assets that they acquired, is larger in comparison to their net assets. They have a very long-time horizon and potentially growing incomes. Their portfolio is geared towards the high-risk side of the spectrum. In which phase of the individual life cycle would Mr and Mrs Graham be classified?

1. Accumulation phase
2. Consolidation phase
3. Preservation phase
4. Spending phase

38 Calculate the covariance between shares P and Q, if the standard deviation of return of share P is 0.56 and the standard deviation of return of share Q is 0.92. The correlation of shares P and Q is 0.85.

1. 0.44
2. 0.52
3. 0.85
4. 1.65

Use the information below to answer questions 39 and 40.

Evaluate the three unit trusts for performance evaluation. The risk-free return during the sample period is 7%, and the average return on the market portfolio is 14%. The average returns, standard deviations and betas for the three funds are given below.

Unit trust	Average return	Standard deviation	Beta
Fund G	15%	5%	0.8
Fund H	16%	10%	1.1
Fund L	18%	15%	1.4

39. Determine the fund with the highest Jensen measure

1. Fund G
2. Fund H
3. Fund L
4. Fund H and L are tied for highest

40. Calculate the Sharpe and Treynor measures of **fund H**

	<u>Sharpe</u>	<u>Treynor</u>
1.	0.72	1.82
2.	0.90	8.18
3.	1.20	4.58
4.	1.45	9.20

TOTAL:

40 MARKS

TURN OVER

PAGE FOR ROUGH WORK

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PART 1 (GENERAL/ALGEMEEN) DEEL 1

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PART 2 (ANSWERS/ANTWOORDE) DEEL 2

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