INV2601   (494521)   October/November 2010

INVESTMENTS: AN INTRODUCTION

Duration   2 Hours

40   Marks

EXAMINERS
FIRST   MS JM NJUGUNA
SECOND   MS E BOTHA

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   **494521**

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1. Assume the expected rate of inflation is 5% and the real risk-free rate is 8% Calculate the nominal risk-free rate of return (NRFR)

   1   11 34%

   2   13 00%

   3   13 40%

   4   21 30%

2   Which combination gives the correct steps that should be followed by a portfolio manager while creating an investment policy statement (IPS) during the investment management process?

   I   Selecting a portfolio strategy

   II   Establishing investment objectives and constraints

   III   Measuring and evaluating performance

   IV   Selecting assets

   V   Establishing investment policy

   1   I   II   III   IV   V

   2   II   IV   I   V   III

   3   II   V   I   IV   III

   4   V   II   I   III   IV

3   Which of the following combinations gives the characteristics of well-functioning securities markets?

   I   Liquidity and price continuity

   II.   Unavailability of information

   III   Low transaction costs

   IV   External efficiency

   1   I   II   III

   2   I   III   IV

   3   II   III   IV

   4   I   II   iii   IV

4 If you place a stop-loss order to sell 500 shares of Renaissance Capital at R115 when the current price is R120, how much will you receive for each share if the price drops to R110?

1 Close to R110

2 Close to R115

3 Close to R120

4 Won't sell because the price is too low

5 An investor should not expect to receive additional return for assuming   risk because it is diversifiable

1 Liquidity

2 Systematic

3 Total

4 Unsystematic

6 A company has a beta of 1 4 The market rate is 12% and the risk free rate is 6% The company is expected to pay a dividend of R5 00 per share next year, with no further growth anticipated Determine the value of the firm's ordinary share

1 R27 78

2 R34 72

3 R50

4 R59 52

7 The following information is available for unit trust Z for the year 2009

Unit trust	Average rate of return (%)	Variance (%)	Correlation coefficient with the market index
Z	11	15	0 75
Total Market Index	8	2	

Calculate the beta coefficient of unit trust Z

1 2 05

2 2 90

3 11 25

4 15 91

8 Calculate the expected returns of shares A and B using the arbitrage pricing theory model?

$\lambda_0 = 3\ 20$ $b_{A,1} = 0\ 75$

$\lambda_1 = 4\ 40$ $b_{A,2} = 2\ 10$

$\lambda_2 = 5\ 10$ $b_{B,1} = 0\ 80$

                             $b_{B,2} = 4\ 25$

1   12 35%   14 55%

2   14 01%   25 20%

3   15 55%   17 75%

4   17 21%   28 40%

9 Lerato Ngcobo will receive an ordinary annuity of R10 000 for 8 years The first payment is to be received five years from now At a 12% annual interest rate, what is the value of the ordinary annuity today?

1   R28 188

2   R31 570

3   R36 048

4   R49 676

10 Calculate the growth rate of the following stream of cash flows

2006   R1 500

2007   R1 615

2008   R1 705

2009   R1 790

2010   R1 840

1   5 24%

2   7 92%

3   13 93%

4   22 67%

11 Jack Russell make an investment today of which he will receive R545 000 five years from now This investment entails a risk premium of 6% An investment in Treasury Bills currently yields 8%, interest is payable semi-annually The maximum amount to be currently invested is

    1   R277 050

    2   R283 056

    3   R368 182

    4   R405 531

12 Venture Ltd's share price is currently trading at R50 and it expects next year's dividend per share (D1) to be R2 00 It also anticipates having a constant growth of 5% Given Venture Ltd's risk you have a required rate of return of 14% Your expected rate of return and investment decision is as follows

    1   4%   Buy

    2   4%   Don't buy

    3   9%   Buy

    4   9%   Don't buy

13 Alpha Corporation just paid dividends of R1 per share Assume that over the next three years dividends will grow as follows, 25% in year one, 15% in year two and 10% in year three After that growth is expected to level off to a constant growth rate of 5% per year The required rate of return is 10% Calculate the intrinsic value using the multistage model

    1   R26 78

    2   R28 46

    3   R36 72

    4   R42 38

14 Assume the ordinary shares of ABC Investment Ltd trades at R25 00 and the firm's book value is R1 50 The firm has an earnings yield of 9% and a dividend yield of 4% Calculate the price/book value (P/BV) ratio of the firm

    1   16 03

    2   16 67

    3   17 63

    4   18 67

15 The South African Reserve Bank (SARB) expects the anticipated inflation to be significantly higher due to the rising oil prices What tool should be used to reduce the high inflation rate?

    1 Lowering the repo rate

    2 Purchasing additional government securities

    3 Reducing reserve requirement

    4 Selling previously bought government securities

16 Use the following information to calculate the ROE of Board Holdings Ltd

DPS	R1 50
Total Asset turnover	2 7×
Net profit margin	5 50%
EPS	R2 50
Total assets/equity	2×

    1 22 28%

    2 27 50%

    3 29 70%

    4 37 13%

17 A speculative share is characterized by

    1 A high probability of very high return

    2 A high probability of low or negative rates of return

    3 A low probability of low returns

    4 Being undervalued

18 Technical analysts make a number of assumptions in order to make abnormal profits Which one of the following is not an assumption made by technical analysts?

    1 Market value is determined solely by the interaction of supply and demand

    2 Supply and demand are governed by numerous factors that are only rational

    3 Disregarding minor fluctuations in the market, share prices tend to move in trends which persist for an appreciable length of time

    4 Changes in trends are caused by shifts in demand and supply

19 Nelly Smith is a technical analyst She is observing the 200 day moving average of Sasol Ltd, she should **buy** the share when the

    1 Share's price rises above its 200-day moving average

    2 Share's price falls below its 200-day moving average

    3 Share's price is equal to its 200-day moving average

    4 200-day moving average is flat

20 Assume you purchase 200 shares on margin for R60 per share Also assume, the initial margin is 50% and the share pays no dividend What would be your rate of return if you sell the shares one year later for R75 per share? Ignore interest on margin and assume you did not remove any money from the account prior to selling the shares

    1 25%

    2 29 41%

    3 41 67%

    4 50%

21 Which of the following bonds with embedded options provides for repayment of the principal amount through a series of payments over the life of the issue?

    1 A bond with a call provision

    2 A bond with a put provision

    3 A bond with a sinking fund provision

    4 Floating rate notes

22 An investor has an 8% annual paying bond with a par value of R1 000 The bond has a market price of R1 200 and 20 years to maturity Determine the bond equivalent yield of the bond

    1 3 09%

    2 3 12%

    3 6 13%

    4 6 22%

23 Calculate the yield to call of a 7% semi-annual paying bond with a par value of R1 000 The bond matures in 20 years, has a market price of R1 115 57 and a yield to maturity of 6% It is callable by the issuer in 8 years at a call price of R1 364

1   4 25%

2   4 46%

3   8 29%

4   8 34%

24 Assume that you purchase a 2-year R1 000 par value bond, with a 10% coupon and a yield to
    maturity of 5% The market price of the bond is R1 093 After you purchase the bond, one-year
    interest rates are as follows, year 1 = 7%, year 2 = 9% (these are the reinvestment rates)
    Calculate the realized compound or horizon yield, if you hold the bond to maturity Interest is
    paid annually

    1   4 78%

    2   5 11%

    3   5 17%

    4   5 89%

25 Calculate the equivalent 12-month spot rate (SR$_{12}$) of Bond B 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
A	6	8%	R100	8%
B	12	15%	R102 75	12%

    1   9 25%

    2   12 00%

    3   12 16%

    4   12 52%

26 Compute the duration of the following bond assuming a 1% change in the yield to maturity

    Time to maturity   5 years

    Coupon rate   8% per annum

    Coupon payments   semi-annual

    Face value   R1000

    Yield to maturity   12%

    Market price   R852.80

1   3 797

2   3 909

3   7 816

4   7 826

27 Calculate the convexity effect, if the effective convexity is 93 85 and the yield to maturity changes by 150 basis points

1   0 0094

2   0 0211

3   1 4078

4   14 0775

28 Which division of the Johannesburg Stock Exchange Limited (JSE) deals in the trading of derivative contracts based on financial products and agricultural products?

1   Main board (JSE)

2   Interest rate exchange (Yield-X)

3   South African Futures Exchange (SAFEX)

4   Venture capital market (VCM)

29 Forward commitments are contracts in which two parties enter into an agreement to engage in a transaction at a later date at a price established at the start Which combination consists of derivates instruments that are classified as forward commitments?

   i   Forward contracts

   ii   Futures contracts

   iii   Options

   iv   Swaps

1   i   ii   iii

2   i   ii   iv

3   i   iii   iv

4   ii   iii   iv

Use the following information to calculate questions 30 and 31

Luke Thompson believes he has identified an arbitrage opportunity for a commodity as indicated by the information given in the following table

Commodity price and interest rate information.

Spot price for commodity	R130
Futures price for commodity expiring in 1 year	R100
One-year interest rate	6%

30 The theoretical futures price is calculated as

   1 R131 60

   2 R133 84

   3 R137 80

   4 R141 26

31 The following actions will realize an arbitrage profit

   1 Buy spot, invest proceeds, buy futures

   2 Buy spot, borrow money, sell futures

   3 Sell spot, borrow proceeds, buy futures

   4 Sell spot, invest proceeds, buy futures

32 Kabelo Mabalane bought Juta Ltd's share, it has a market price of R64 and a strike price of R70 He buys a put for a premium of R2 45 Calculate the maximum profit of the put holder

   1 R61 55

   2 R66 45

   3 R67 55

   4 R72 45

33 A European call option and put option on the shares of Sky Ltd both have a strike price of R105 and a time to expiration of 6 months The put option trades at R6 50 The current risk-free interest rate is 8% per annum and the current share price is R100 Using put-call parity, calculate the price of an equivalent European call

1 R5 46

2 R6 02

3 R7 02

4 R11 11

34 Which option trading strategy involves generating additional portfolio income while the underlying share price is expected to remain unchanged over the short term?

1 Bull and bear spreads

2 Covered call

3 Protective put

4 Straddle

35 Calculate the lower bound price of a 9-month European call option on a non-dividend paying share when the share price is R115, the strike price is R100 and the risk-free rate of interest is 10% per annum

1 R5

2 R21 90

3 R24 09

4 R115

36 Share M has a standard deviation of 26% while share N has a standard deviation of 14% The covariance of the two shares is 0 032 Calculate the correlation coefficient of shares M and N

1 0 036

2 0 123

3 0 229

4 0 879

37 A portfolio is made up of share A and share B Share A has a standard deviation of 20% and a weight of 30% in the portfolio Share B on the other hand has a standard deviation of 10% and a weight of 70% in the portfolio The correlation coefficient of share A and share B is 0 50 Calculate the standard deviation of the portfolio

1 6 49%

2 10 30%

3 11 27%

4 36 63%

38 Shares X, Y and Z 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 X	**Share Y**	**Share Z**
Share X	+1 0		
Share Y	-0 4	+1 0	
Share Z	-0 7	+0 3	+1 0

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

1 Equally invested in share X

2 Equally invested in shares X and Y

3 Equally invested in shares X and Z

4 Equally invested in shares Y and Z

39 Which of the following strategies is a fixed income portfolio management strategy?

1 Intrinsic valuation

2 Relative valuation

3 Technical valuation

4 Yield spread analysis

40 Evaluate the risk-adjusted portfolio performance of the mining and resources portfolio according to the Jensen measure

Portfolio	Average rate of return	Standard deviation	Beta
Mining and resources	30%	0 40	1 60
Market Index	14%	0 10	

Assume the risk free rate of return of 9%

1   9 5%

2   13%

3   17%

4   20 5%

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EXAMINATION MARK READING SHEET

EKSAMEN-MERKLEESBLAD

PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT e g PSY100-X
STUDIE EENHEID bv PSY100-X

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PART 2 (ANSWERS/ANTWOORDE) DEEL 2

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

WRITE | 0 | 1 | for the first paper and | 0 | 2 | for the second. If only one paper, then leave blank.

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❼ In each vertical column mark the digit that corresponds to the digit in your student number as follows.
[-]

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❿ 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· [-].

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