



BNU1501

(490631)

May/June 2016

BASIC NUMERACY

Duration

2 Hours

100 Marks

EXAMINERS

FIRST SECOND MRS JC BEDEKER DR S MUKERU

Programmable pocket calculator is permissible.

Closed book examination

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 11 pages, including 3 pages for rough work

Answer all the questions

Please complete the attendance register on the back page of this paper, tear it off and hand it to the invigilator.

Answer all the questions on the mark-reading sheet supplied Carefully follow the instructions for completing the mark-reading sheet. Also pay attention to the following

- Only one option (indicated as [1] [2] [3] [4]) per question is correct. Do not mark more than one option per question on the mark-reading sheet
- · Marks will not be deducted for incorrect answers
- The paper consists of 25 questions for a total of 100 marks

Please write your name on the mark-reading sheet. This will enable us to link you to the mark-reading sheet, if you have entered your student number incorrectly.

Solve the following equation

$$3(x+1) + 4 = 5 - 3(x-2)$$

- [1] $-1\frac{1}{3}$
- [2] $-\frac{2}{3}$
- [3] 3
- $[4] \frac{2}{3}$

Question 2

Solve the following equation

$$\frac{30x}{9} + 2 = 5x$$

- [1]
- [2] $\frac{43}{30}$
- [3] $-\frac{18}{25}$
- $[4] \frac{6}{5}$

Question 3

Simplify the following expression as far as possible

$$\sqrt{36x^4y^{16}}$$

- [1] $9x^4y^4$
- [2] $6x^2y^8$
- [3] $18x^2y^8$
- [4] $6x^2y^4$

Question 4

Simplify the following expression as far as possible

$$a(2a^2-a-4)-2a(a+3)-1$$

- [1] $2a^3 3a^2 6a 5$
- [2] $-a^2 7a 1$
- [3] $2a^3 3a^2 10a 1$
- [4] $2a^3 3a^2 + 2a 1$

Simplify the following as far as possible

$$\frac{5}{6} \div \frac{3}{6} \times \frac{3}{15}$$

- [1] $\frac{25}{3}$
- [2]
- [3] $\frac{1}{12}$
- [4] $\frac{3}{25}$

Question 6

Simplify the following as far as possible

$$\frac{5}{6} - \frac{3}{4} + \frac{7}{24}$$

- [1] $\frac{9}{26}$
- [2] $\frac{1}{8}$
- [3] $\frac{61}{24}$
- [4] $\frac{3}{8}$

Question 7

Simplify the following as far as possible

$$\frac{3}{4} + \frac{1}{2} \times \frac{5}{4}$$

- [1] $\frac{2}{3}$
- [2] $\frac{11}{8}$
- [3]
- $[4] \frac{13}{4}$

Question 8

Determine the LCM (lowest common multiple) of the following

 $6a^2bc$, 8abc, $12ab^3$

- [1] $24a^2b^3c$
- [2] 12abc
- [3] $12a^2b^3c$
- [4] $576a^4b^5c^2$

The length of a rectangle is $3 \, \mathrm{cm}$ less than twice the width. Suppose the width is $x \, \mathrm{cm}$, give an expression in x for the length of the rectangle in cm

- [1] x 3
- 2(x-3)
- [3] 2x 3
- 4! 2(x+2)

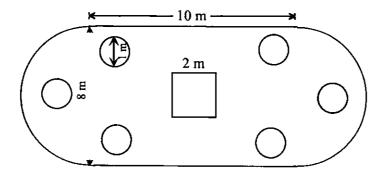
Question 10

Simplify the following expression as far as possible

$$\frac{x^2\times x^3}{x^5}$$

- [1] a
- [2] $x^{\frac{6}{5}}$
- [3] $\frac{6}{5}$
- 4] 1

Question 11



A garden is laid out so that it consists of a rectangle with a semi-circle at each of the shorter ends (See sketch above) The garden contains a square fish pond and six circular planting areas. Each planting area has a diameter of 1 metre. The remainder of the garden is lawn. Calculate the perimeter of the garden, rounded to one decimal digit.

- [1] 70,3 m
- [2] 120,5 m
- [3] 2010,6 m
- [4] 45,1 m

Refer to the sketch in question 11 above Calculate the area of the lawn, rounded to one decimal digit

- [1] 121,6 m²
- [2] 107,4 m²
- [3] 258,2 m^2
- [4] 82,3 m²

Question 13

Refer to the sketch in question 11 above Calculate the volume of the fish pond in litres if it is 1,5 m deep

- [1] $6\,000\ell$
- [2] $4\,000\ell$
- [3] 6 *\ell*
- [4] 3000*l*

Question 14

If $C = 2(\ell + w)$, make w the subject of the formula

- $[1] \quad w = C 2 \ell$
- $[2] \quad w = \frac{C-2\ell}{2}$
- [3] $w = 2C \ell$
- $[4] \qquad w = \tfrac{C}{2} + \ell$

Question 15

A company manufactures soccer balls The company's daily fixed costs (i.e. rental, phones, stationery, etc.) are R18 000. One soccer ball costs R500 to manufacture and it is sold for R800. How much profit does the company make per day if 100 soccer balls are produced and sold per day?

- [1] R12 000
- [2] R30 000
- [3] $-R150\,000$
- [4] R48 000

Question 16

Calculate the slope of the straight line graph which passes through the points (-1, -2) and (3, 4)

- [1] 1
- [2]
- $[3] \quad 4y = 6x 2$
- [4] $\frac{2}{3}$

A dealer sells a certain washing machine for R2410, excluding VAT If we assume VAT is 14%, what will the washing machine cost, including VAT?

- [1] R2 072,60
- [2] R2 424,00
- '3] R2747,40
- 4] R337,40

Question 18

Suppose I need 5 eggs to bake 2 cakes How many eggs will I need to bake 14 cakes?

- [1] 28
- [2] 14
- [3] 35
- [4] 10

Question 19

Joseph invests $R36\,000$ at a simple interest rate of 6% per year. How much will be have after 6 years and 5 months?

- [1] R50 040,00
- [2] R49 860,00
- [3] R142 200,00
- [4] R52 321,69

Question 20

Susan invests R45 000 at a simple interest rate of 6% per year. Two years later she invests another R20 000 at the same simple interest rate. What is the total amount that Susan will have after another 3 years?

- [1] R82 100,00
- [2] R74 000,00
- [3] R76 700,00
- [4] R84 500,00

Question 21

Determine at what interest rate per year an amount will double in 10 years' time if the interest is compounded monthly

- [1] 7,18%
- [2] 0.07%
- [3] 20,00%
- [4] 6,95%

Determine the amount of interest that will be earned if R8 000 is invested for 30 months at an interest rate of 13% per year, compounded half-yearly

- [1] R2 960,69
- [2] R10 960,69
- [3] R11 600,00
- [4] R3 600,00

Question 23

Sarah wants to save an amount of R100 000 over two years for a deposit on a townhouse. She wants to make weekly payments into an account which offers an 8% yearly interest rate, compounded weekly Determine the size of her weekly payments.

- [1] R3 856,06
- [2] R4 522,73
- [3] R887,40
- [4] R1 041,25

Question 24

In 1997 Justin bought a three bedroom house for R480000. He paid a deposit of R150000 and secured a loan for the outstanding amount. The yearly interest rate on the loan was 24%, compounded monthly, and the term was 20 years. Determine the outstanding amount at the end of the tenth year if Justin had done all monthly payments in full and the interest rate stayed fixed on 24% per year for the whole period.

- [1] R439 201,59
- [2] R301 951,08
- [3] R329 370,97
- [4] R0,00

Question 25

Refer to question 24 above

Suppose Justin had paid R8000 per month into this loan account from the start. How long would it take to pay off the loan if the interest rate stayed fixed?

- [1] 12,7 years
- [2] 3,4 years
- [3] 7,3 years
- [4] 22,1 years

TOTAL: 100

FORMULAS

$$C = 2(l+w)$$

$$C = 4l$$

$$C = a + b + c$$

$$C = 2\pi r$$

$$A = l \times w$$

$$A = l^{2}$$

$$A = \frac{1}{2}bh$$

$$A = \pi r^{2}$$

$$V = l^{3}$$

$$V = l \times base \times h$$

$$V = \pi r^{2}h$$

$$y - y_{1} = m(x - x_{1})$$

$$\frac{y - y_{1}}{x - x_{1}} = \frac{y_{2} - y_{1}}{x_{2} - x_{1}}$$

$$I = Prt$$

$$S = P(1 + rt)$$

$$S = P(1 + rt)^{n}$$

$$P = Ra_{\overline{m}_{1}}$$

$$P = R\left[\frac{(1 + i)^{n} - 1}{i(1 + i)^{n}}\right]$$

$$S = Rs_{\overline{m}_{1}}$$

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 $S = R\left[\frac{(1+i)^n - 1}{i}\right]$

Rough work

Rough work

Rough work

EXAMINATION MARK READING SHEET



UNIVERSITY OF SOUTH AFRICA UNIVERSITEIT VAN SUID-AFRIKA **EKSAMEN-MERKLEESBLAD**

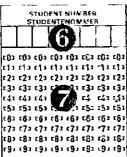
PART 1 (GENERAL/ALGEMEEN) DEEL 1

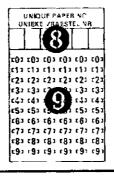


INITIALS AND SURNAME VOORLETTERS EN VAN

DATE OF EXAMINATION DATUM VAN EKSAMEN

EXAMINATION CENTRE (E.C. PRETORIA)
EKSAMENSENTRUM BY PRETORIA)





For use by examination invigilator Vir gebruik deur eksamenopsiener

IMPORTANT

- 1. USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
- 2. MARK LIKE THIS 😎
- 3. CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
- 4 ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
- 5. CHECK THAT YOUR STUDENT NUMBER HAS BEEN FILLED IN CORRECTLY
- 6 CRECK THAT THE UNIQUE NUMBER HAS BEEN FILLED IN CORRECTLY
- 7 CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
- 8. DO NOT FOLD

BELANGRIK

- 1 GEBRUIK SLEGS IN HB POILOOD OM HIERDIE BLAD TE VOLTOOI
- 2. MERK AS VOLG P2
- 3. KONTROLEER DAT U VOORLETTERS EN VAN REG INGEVUL IS
- VUL U STUDENTENOMMER VAN LINKS NA REGS IN
- KONTROLEFR DAT U DIE KORREKTE STUDENTENOMMER VERSTREK HET
- G. KONTROLEER DAT DIE UNIEKE NOMMER REG INGEVUL IS
- 7 MAAK SEKER DAT NET EEN ALTERNATIEF PER VRAAG GEMERK IS
- 8. MOENIE VOU NIE

PART 2 (ANSWERS/ANTWOORDF) DEEL 2

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