



FACULTY	FACULTY OF EDUCATION		
DEPARTMENT	MATHEMATICS, SCIENCE AND SPORT EDUCATION		
SUBJECT	MATHEMATICS EDUCATION 1B		
SUBJECT CODE	EMMU 3612		
DATE	NOVEMBER 2024		
DURATION	3 HOURS	MARKS	100
LECTURERS	MR T. NAWESEB; DR. VATILENI ; MR A.M. ILUKENA; MR BM SIMASIKU		

SECOND OPPORTUNITY EXAMINATION

Examiner: Mr. B.M Simasiku

Moderator: Dr. F.N. Haimbodi

INSTRUCTIONS

- 1. Work in an orderly way and present your work as neatly as possible.**
- 2. While most of the marks will be awarded for content, candidates must bear in mind the importance of presentation, i.e. insight and critical thinking.**
- 3. Number your questions correctly and clearly.**
- 4. This paper consists of 4 pages including the cover page.**
- 5. Answer all the questions.**
- 6. POCKET CALCULATORS ARE NOT ALLOWED**

Section A

Answer the following multiple-choice questions by only writing the correct letter e.g. 1. A.

1. What is the estimate product of 9.86 and 3.14?

- A. 15 B. 10 C. 30 D. 15 E. 20 (2)

2. The school library has acquired some new books. The 4 books about computers are one-third of the non-fiction books. How many non-fiction books were bought?

- A. 16 B. 8 C. 24 D. 14 E. 12 (2)

3. Arrange in ascending order: 1.1; 1.111; 1.01; 1.101 (2)

A. 1.1; 1.01; 1.111; 1.101

B. 1.1; 1.111; 1.01; 1.101

C. 1.1; 1.111; 1.101; 1.01

D. 1.01; 1.1; 1.101; 1.111

E. 1.111; 1.1; 1.01; 1.101

4. $54 - 6 \div 2 + 6 =$

- A 6 B 24 C 27 D 30 E 57 (2)

5. When you convert $3.27\overline{272727}$ to a mixed fraction; the answer is?

- A $3\frac{1}{2}$ B $3\frac{27}{100}$ C $3\frac{3}{11}$ D $3\frac{27}{1000}$ E $3\frac{11}{33}$ (2)

6. $2.50 + (11.01 - 1.01) \div 0.2 =$

- A 72.60 B 52.50 C 62.50 D 48.50 E 50.02 (2)

7. You invest N\$500.00 at 14% simple interest per year. How much interest do you earn in 3 years?

- A N\$ 210 B N\$21 C N\$ 710 D N\$ 70 E N\$290 (2)

8. If y is directly proportional to x and $y = 200$ when $x = 25$. The constant of proportionality is.....

- A. $\frac{25}{200}$ B. $\frac{1}{10}$ C. 25 D. 10 E. 8 (2)

9. The Grade 7 Mathematics teachers gave the learners an investigation to explore a division principle using 10 divided by 2; 0.2; 0.02; 0.002; 0.002. The learners noticed the following pattern:

$$10 \div 2 = 5$$

$$10 \div 0.2 = 50$$

$$10 \div 0.02 = 500$$

$$10 \div 0.002 = 5000$$

$$10 \div 0.0002 = 50000$$

What principle of division did they discover?

- A. Each time the divisor doubles the quotient doubles.
- B. Each time the divisor doubles the quotient gets 2 times smaller.
- C. Each time the divisor gets 10 times larger the quotient gets 10 times smaller.
- D. Each time the divisor gets 10 times smaller the quotient gets 10 times smaller.
- E. Each time the divisor gets 10 times smaller the quotient gets 10 times bigger.

10. If the price of an article has been reduced by 20% and now costs N\$44, what was its original price?

- A. N\$ 52.80 B. N\$ 52 C. N\$55 D. N\$48 E. N\$ 60 (2)

$$[2 \times 10 = 20]$$

Section B

Question 1

Use a linear model to help in providing solutions to the following problems:

(a) $3 \div \frac{2}{3}$ [3]

(b) $4 \times \frac{3}{4}$ [3]

$$[2 \times 3=6]$$

Question 2

Simplify

(a) $\frac{3}{x-2} - \frac{2}{x^2-4}$ [3]

(b) $\frac{a}{bc} + \frac{b}{ac} + \frac{c}{ab}$ [3]

(c) $\frac{x+2}{x^2+4x+4}$ [3]

$$[3 \times 3=9]$$

Question 3

Solve for the following equations:

(a) $\frac{3x}{4} - \frac{x}{2} = \frac{5x}{6} + 1\frac{1}{3}$ [2]

(b) $\frac{a-2}{3} - \frac{2a-1}{8} = \frac{3a+2}{4} - \frac{a+4}{6}$ [3]

$$[3+2 = 5]$$

Question 4

In a school population of 50, there are 30 girls

- (a) What percentage are girls? [2]
- (b) What percentages are boys? [2]
- (c) Express the information in
 - i. Part to whole ratio [2]
 - ii. Part to part ratio [2]
- (d) Discuss four examples of cases where percentages can be greater than 100. [8]
- (e) Write down a word problem involving the calculation of a percentage of a quantity and provide the solution to the word problem. [4]

$$[2 \times 4 + 4 + 8 = 20]$$

Question 5

A Grade 4 Mathematics teacher gave the learners the following addition problem to solve:

$\frac{1}{2} + \frac{1}{3}$. Raphael solved the problem and got $\frac{2}{5}$.

- (a) Analyse Raphael's answer. [4]
- (b) Solve Raphael's addition problem using
 - i. Estimation [2]
 - ii. Area models. [4]
 - iii. Equivalent fractions [4]
 - iv. Decimal fractions [4]
- (c) Write down a real life word problem to represent the addition problem. [2]
- (d) Explain the following concepts with regard to fractions.
 - i. The part-whole interpretation of fractions [4]
 - ii. Fractions as part of a set [4]
 - iii. Fractions as a quotient [4]
- (e) Van de Walle, et al (2014, p. 311) asserts that "it is important for a teacher to help learners see how fractions are like and different from whole numbers". Discuss any four common misapplications of whole numbers to fractions. [8]

$$[2 \times 2 + 4 \times 7 + 8 = 40]$$