

University of Swaziland
Final Examination Paper December 2009

Program: B.Ed 1 Primary

Course Code: PEC100

Course Name: Basic Numerical Skills

Time Allowed: 3 Hours

Instructions: 1. This Paper is Divided into **Two** Sections

2. Answer **All Questions** in Section A on the Question Paper
Showing Necessary Working in the Spaces Provided
3. Answer Any **Three Questions** in Section B on the Answer
Booklet Provided Showing **All Necessary Working**.
4. Any Piece of Material Which is not for Marking Purposes
Must be Crossed out Clearly.

Special Requirement: Graph Paper & Stapler (to fasten section A onto booklet)

This Paper Must Not Be Opened until Permission is Given By the Invigilator

ID Number _____

Section A (52 marks)

Answer all questions in this section. **Calculators are not allowed.** Show working and answers on the question paper for this section.

Question 1

How many significant figures does each of the numbers below have?

(a) 909090 _____ Ans.[1]

(b) 100.072 _____ Ans.[1]

(c) 0.00205 _____ Ans. [1]

Question 2

Find the approximate value of $\frac{809 \times 0.356 \times 13.82}{46.4 \times 9.701}$ by first writing each number to 1 significant figure.

_____ Ans. [6]

Question 3

Find the mean of the following numbers 21, 37, 15, 42, 70, 53, 45.

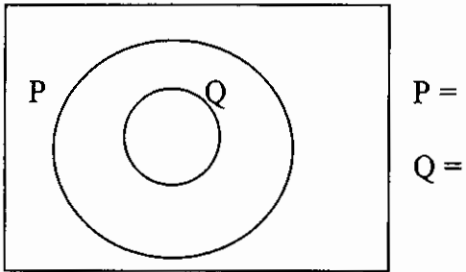
_____ Ans.[5]

ID Number _____

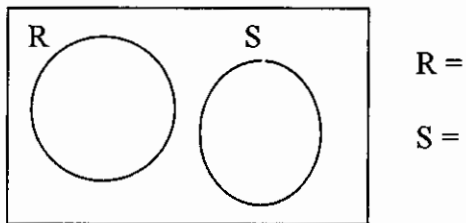
Question 4

For each of the Venn diagrams -drawn below- write an example of any two sets that would fit the diagram. Write the possible sets next to each diagram. [6]

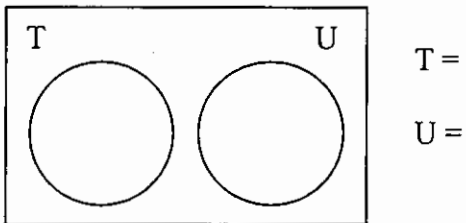
(i)



(ii)



(iii)



Question 5

Arrange the following fractions in ascending order.

$$\frac{2}{3}, \frac{4}{5}, \frac{5}{7}, \frac{3}{5}, \frac{5}{8}$$

_____ Ans.[5]

ID Number _____

Question 6

Work out the following

(a) $2(3 + 4)$

_____ Ans.[1]

(b) $-5 + -4 \div 2$

_____ Ans.[2]

(c) 1.26×-3

_____ Ans.[2].

Question 7

Find the area of a triangle ABC. Where $AB = 12$ cm, $BC = 2.5$ cm and $\angle ABC = 90^\circ$

_____ Ans.[5]

Question 8

Share E72.00 between Delisile and Thuleleni in the ratio 1:5

Delisile gets _____ Ans.[1]

Thuleleni gets _____ Ans.[2]

ID Number _____

Question 9

Find 20% of each of the following: [8]

(a) E2976.62 _____ Ans.

(b) 54 m _____ Ans.

(c) 0.0148 _____ Ans.

(d) 999 _____ Ans.

Question 10

Convert each number to the given form

(a) $\frac{3}{8}$ to a decimal fraction _____ Ans.[2]

(b) $\frac{15}{24}$ to a percentage _____ Ans.[2]

(c) 0.225 to a common fraction in its simplest form. _____ Ans.[2]

Section B (48 marks)

Answer any **three questions** from this section. Show your working clearly. **Calculators are allowed** in this section. Use the answer book provided to answer questions in this section.

Question 11

In 2008 the total rainfall received in Mbabane was 1214 mm.

- (a) Given that 48% of this was received in December calculate to the nearest whole number
- The amount of rainfall received in December 2008 [5].
 - The average rainfall received per month in 2008 [4].
 - The actual amount of rainfall received in November 2008 given that 20% was received in November [4].
- (b) Express the amount of rainfall received in November and December 2008 as a ratio November to December [3].

Question 12

On graph paper draw x and y axes both numbered from 0-8 using a scale of 1 cm to represent 1 unit on each axis. [4]

- Plot the points A(1,3) B(7,3) C(6,7) D(3,7). Join them in the given order [5].
- Name the shape drawn [1]
- Calculate the area of the shape in cm^2 [3]
- Express your answer in m^2 [3]

Question 13

Given that the universal set $U = \{\text{rational numbers less than 20}\}$

$C = \{\text{multiples of 2}\}$

$D = \{\text{counting numbers}\}$

$B = \{\text{even numbers}\}$

$E = \{\text{factors of 8}\}$

- Describe the relationship between set C and B [2]
- Write 5 members of U that are not in D [5]
 - Use set language to write the sentence "members of U not in D" [2]
 - Use set symbols to write the sentence "members of U not in D" [1]
- Describe a set A in U such that $A \cap B = \{ \}$ [3]
- How many members are in set D? Write your answer in set notation [3]

Question 14

- Collect like terms $3x - 7x + 8y - 4 + 3y$ [2].
- Remove brackets and simplify $7(3x - 4) - (x - 2)$ [2]
- Simplify the expression $\frac{2(3x - 2)}{2} - \frac{x}{3}$ [4]
- Factorise $x^2 - 3x + 2$ [2]
- Solve
 - $9x + 2 = 56$ [2]
 - $x^2 + x - 6 = 0$ [4]

Question 15

Work out the following:

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

(b) $2\left(\frac{3}{4} - \frac{1}{2}\right)$ [3]

(c) $\frac{5}{6} \times \frac{2}{3} \div \frac{1}{2}$ [3]

(d) $\frac{1}{2}\left(\frac{2}{5} + \frac{2}{3} - \frac{1}{4}\right)$ [4]

(e) $\frac{-1}{6} \times \frac{2}{3} \div \frac{4}{7}$ [3]

Question 16

(a) The distribution below shows the months of birth of 20 grade 6 learners.

1, 6, 2, 5, 6, 2, 2, 8, 3, 4

7, 9, 3, 4, 6, 8, 4, 3, 1, 6

- (i) Using a scale of 2 cm on the vertical axis to represent 1 learner and 2 cm on the horizontal axis to represent each month, present this information in a bar chart [10]
- (ii) What is the modal month of birth for this group? [3]
- (b) Find the median of the following marks 44, 33, 73, 80, 54, 49, 60, 41, 51. [3]