

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER May 2007: BED I PRIMARY

COURSE NUMBER: PEC 100

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. ANSWER ANY THREE (3) QUESTIONS FROM SECTION B.
  3. DOCUMENTS REFERRED TO IN SOME OF THE QUESTIONS ARE ATTACHED. IF YOU CAN'T FIND THEM ASK FOR THEM.
  4. ANY PIECE OF MATERIAL WHICH IS NOT FOR MARKING PURPOSES MUST BE CROSSED OUT CLEARLY.

SPECIAL REQUIREMENTS: GRAPH PAPER

THIS PAPER MUST NOT BE OPENED UNTIL PERMISSION IS GIVEN BY THE INVIGILATOR

**SECTION A - 52 MARKS**

Answer ALL questions from this section. Show all working. The use of calculators is not permitted.

1. How many significant figures does each of the following numbers have?

- a. 5301.08                      b. 0.00317                      c. 97 000  
 (3)

2. a. What is the place value of 3 in the numbers below:  
 i. 3001.2                      ii. 70.1963                      iii. 0.00317                      (3)

- b. Rewrite the numbers in 2a. above to  
 A. 2 significant figures                      (3)  
 B. 3 decimal places                      (3)

3. Which of the following statements are true and which are false?  
 a.  $7 \neq$  integer  
 b. Counting numbers are natural numbers  
 c.  $\sqrt{2}$  is a rational number  
 d.  $\sqrt{-4}$  is a real number                      (4)

4. Copy and complete the table below?

fraction	Decimal (to two places)	percent
$\frac{1}{3}$		
	0.75	
		60%

(6)

5. Given that  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$  is the universal set

Draw a Venn diagram to represent set A = prime numbers and set B = square numbers

(6)

6. Work out the following

- a.  $2.71 \times 1.3 + 84.5 \div -5$  (3)  
 b.  $-4 + 3 - 2 + 5$  (3)  
 c.  $3.71 \times 200 + 2(46 - 2 \times 7)$  (4)

7. a. Given that  $x = -3$  and  $y = 2$

Find the value of  $\frac{2xy}{-x}$  (2)

b. Simplify the expression  $x^2 - 9$  (2)

8. Arrange the following in order of size starting with the lowest

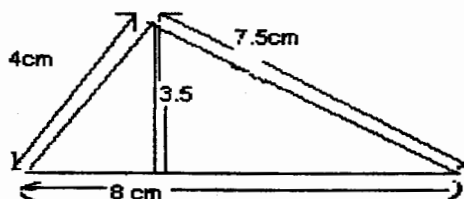
a.  $\frac{1}{2}, \frac{2}{3}, \frac{1}{4}, \frac{2}{5}, \frac{4}{5}, \frac{4}{7}$  (2)

b. 0.173, 0.098, 0.222, 0.106, 0.5 (2)

9. Write E240 and E400 as a ratio. (2)

10. Calculate the area of the following figure and give your answers:

- (a)  $\text{cm}^2$  (2)  
 (b)  $\text{m}^2$  (2)



**Total**

**52 Marks**

**SECTION B - 48 MARKS**

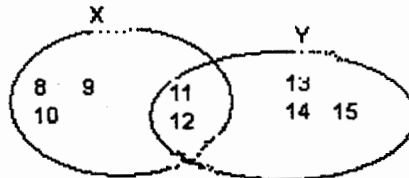
Answer any **three** questions for this section. You may use calculators. Use a separate sheet to write your answers to each question. Graph paper is provided, if you do not have it, ask for it.

**Question 11**

- a) A farmer produces 150 litres of milk per day. On Thursdays he sells all the milk he produces. If he charges E8.50 per litre, how much money does he collect on Thursdays? (3)
- b) If he sells 60% of the milk he produces on Fridays, how much milk does he sell on Fridays? (2)
- c) On Mondays, his customers want the milk in 5 litre bottles. How many bottles does he use for all the milk produced on that day? (2)
- d) On Wednesdays, he has only three customers: Mr. Papi and Mrs More, who buy milk in the ratio 2:3 respectively. (9)
  - i. How much milk does each get if they buy a total of 120 litres.
  - ii. How much does each of them pay each time?

**Question 12**

The following Venn diagram below represents two sets X and Y.



- a. List the elements of (i) X and the elements of (ii) Y (4)
- b. List the elements of (i)  $X \cap Y$  and (ii)  $X \cup Y$  (4)
- c. Given that the universal set ( $\mathcal{E}$ ) = the first fifteen counting numbers, list the elements of (i)  $X \cap Y'$  and (ii)  $(X \cap Y)'$ . (4)
- d. Produce an equivalent set to set  $A = \{8, 10, 12\}$  from the universal set. Call your set B. (2)
- e. Describe set B in words (2)

**Question 13**

Work out the following:

- a.  $3\frac{1}{2} + 1\frac{1}{3} - 2\frac{2}{3}$  (3)
- b.  $2\frac{2}{3} \times \frac{3}{4} \div \frac{1}{3}$  (4)
- c.  $\frac{1}{2} (\frac{2}{3} + \frac{3}{4}) - 2\frac{1}{3}$  (6)
- d. Draw a number line and mark the points a and b such that  $a = -\frac{1}{4}$  and  $b = 2\frac{1}{2}$  (3)

**Question 14**

a. Simplify the following expressions

- i.  $\frac{2x}{-2} + \frac{x-1}{3}$  (4)
- ii.  $\frac{1}{2} (2x + 4) - 5x$  (3)
- iii.  $x^2 - 7x + 12$  (4)

b. Solve the following simultaneous equations

$$\begin{aligned} x + y &= -5 \\ 2x - y &= 2 \end{aligned} \quad (5)$$

**Question 15**

- a. On the graph paper provided, draw and label an x and y axis from -2 to 8 and from -3 to 8 respectively. (4)
- b. Write 3 coordinates for the graphs (i)  $y = 2x$  and (ii)  $y = x + 2$  (6)
- c. Plot the graphs (i) and (ii) in b) above on the same axis. (6)