

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER – 2011: 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. SECTION A ALL QUESTIONS ARE **COMPULSORY**. YOU MAY THEN CHOOSE **ANY TWO (2)** QUESTIONS FROM SECTION B.
  3. SECTION A IS WORTH A MAXIMUM OF 60 MARKS AND SECTION B IS WORTH 40 MARKS.
  4. DOCUMENTS REFERRED TO IN SOME OF THE QUESTIONS ARE ATTACHED. IF YOU CAN'T FIND THEM ASK FOR THEM.
  5. 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 60 MARKS

Answer **ALL** questions in this section. The use of a calculator is not permitted.

Question 1

- (a) Arrange the following fractions in ascending order of size  
 $\frac{5}{8}$      $\frac{3}{4}$      $\frac{2}{3}$      $\frac{1}{6}$      $\frac{7}{12}$  [3]
- (b) Express 72 as a product of its prime factors [3]
- (c) Classify  $\sqrt{5}$  in the hierarchy of numbers [1]

Question 2

- (a) What is the place value of 5 in the numbers below?  
 (i) 235.087 [1]  
 (ii) 0.39562 [1]  
 (iii) 500.5709 [1]
- (b) Rearrange the numbers in 2(a) above to  
 (i) 2 decimal places, [3]  
 (ii) 3 significant figures. [3]

Question 3

- (a) Work out the following  
 (i)  $-7 - 9 \times 2 + -5$  [2]  
 (ii)  $546.39 - 34.2 \times 2 + 5.01 - 400$  [3]
- (b) Calculate the following  
 (i)  $\frac{3(-5-7)+12}{3}$  [2]  
 (ii)  $\frac{3}{4} \div \frac{6}{7} \times 3\frac{3}{5}$  [3]  
 (iii)  $5\frac{5}{7} - 4\frac{1}{2} + \frac{3}{14}$  [3]

Question 4

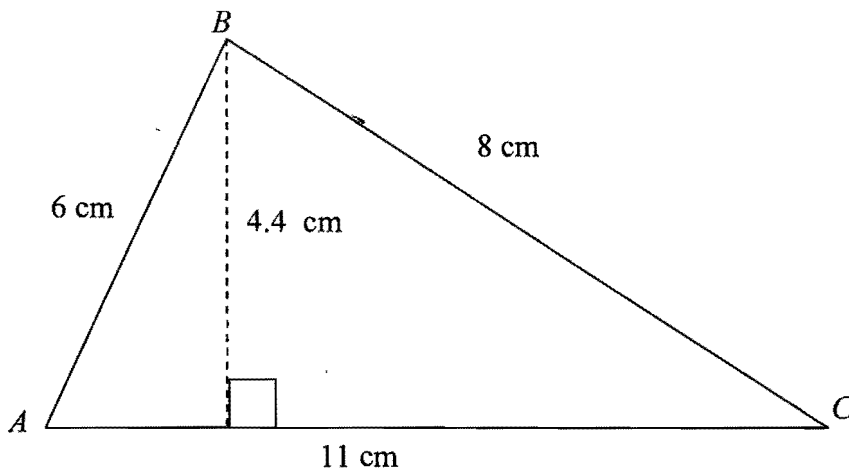
Copy and complete the table below.

Fraction	Decimal (to two places)	Percentage
$\frac{1}{5}$		
	0.65	
		80%

[6]

Question 5

(a) Triangle ABC is given below.



- (i) Calculate the area of triangle ABC in  $\text{cm}^2$ . [2]  
(ii) Write the area of ABC in  $\text{m}^2$ . [2]
- (b) You are given that the area of a rectangle is  $60 \text{ cm}^2$  and that its length is 10cm and the width is  $(x + 2)$ . Calculate the value of  $x$ . [3]

Question 6

The distribution below shows marks of a mathematics test scored by some Grade V students.

12    10    13    8    17    15    5    10    18

Find

- (a) the mode [1]  
(b) the median [2]  
(c) the mean [2]

Question 7

(a) Factorise the following

(i)  $8x - 12xy$ , [1]

(ii)  $x^2 - 4x - 12$  [2]

(b) Simplify

(i)  $2a - 4b + 3b - 8a + 6b$  [2]

(ii)  $4(2x - 3y) + 3(x + 2y)$  [2]

Question 8

Given the Universal set  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$  and also that

$A = \{2, 4, 5, 6, 8\}$

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

(a) List set B [2]

(b) Draw a Venn Diagram to illustrate the information above. [4]

## SECTION B - 40 MARKS

Answer any **TWO** Questions in this section. You may use a calculator. 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 9

(a) Simplify the following expressions

(i)  $3(x + 7) + 2(5x - 1)$  [2]

(ii)  $\frac{3x}{5} - \frac{x-1}{4}$  [3]

(iii)  $\frac{2x-5}{3} + \frac{3(x-3)}{7}$  [4]

(b) Solve the following equations

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

(ii)  $x^2 - 9x = -18$  [4]

(iii)  $x^2 - 49 = 0$  [3]

Question 10

Answer the whole of this question on graph paper provided.

(a) Using a scale of 1 cm to 1 unit on both axis, draw and label an  $x$  and  $y$ -axis from 0 to 10 and 0 to 12 respectively [4]

(b) Plot and label the points A(1, 10), B(3, 2) and C(9, 2) [3]

(c) A fourth point D is plotted such that the ABCD is a parallelogram. Plot point D and join the points [3]

(e) The diagonals of ABCD meet at K. Write down the coordinates of K [2]

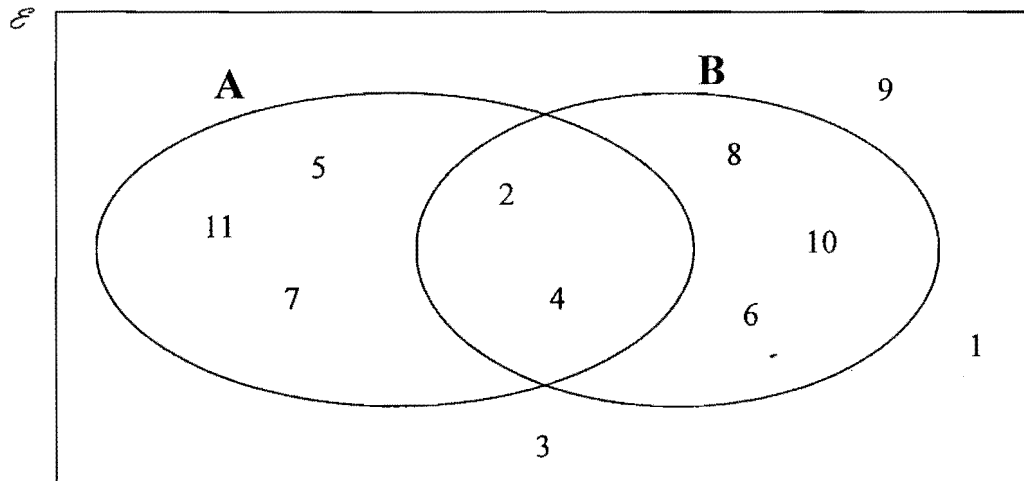
(d) Calculate the area of the parallelogram in [4]

(i)  $\text{cm}^2$

(ii)  $\text{m}^2$  [4]

## Question 11

Two sets, A and B are represented in the Venn diagram.



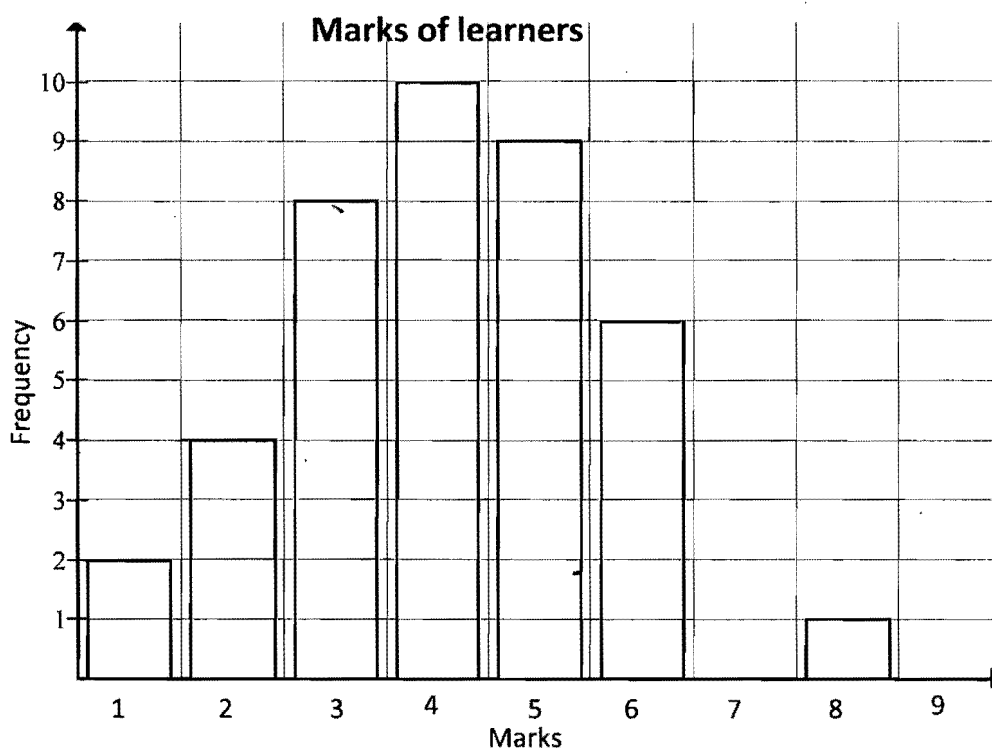
- (a) List the elements of
- the Universal set ( $\mathcal{U}$ ) [2]
  - set B [2]
- (b) Describe set B in full [2]
- (c) List the elements of
- $A \cap B$  [2]
  - $A \cup B^c$  [2]
- (d) Find
- $n(A^c \cap B)$  [3]
  - $n(A \cup B)^c$  [3]
- (e) Write down all the subsets of  $A \cap B$  [4]

Question 12

- (a) A man earns a salary of E10 000.00.  
In one month he used his salary in this way; E4500.00 on payment of loan, E3 000.00 on food, he saves the rest.

- (i) What percentage of his salary was his loan payment? [3]
- (ii) What fraction of his salary did he save? [3]
- (iii) Write the ratio of the distribution of his money in the form; loan : food : save [3]

- (b) The bar chart below represents marks obtained by learners in a class.



- (i) What is the mode? [1]
- (ii) How many students wrote the test? [2]
- (iii) Make a frequency table from the bar chart [2]
- (iv) Calculate the mean [3]
- (v) Calculate the median [3]
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