UNIVERSITY OF JOHANNESBURG
FACULTY OF EDUCATION
NOVEMBER EXAMINATION 2016

PROGRAMME:	BED INTERMEDIATE PHASE
MODULE:	INTRODUCTION TO MATHEMATICS FOR INTERMEDIATE PHASE 1B
CODE:	MATINB1
TIME:	2 hours
MARKS:	120
EXAMINER:	PROF. K. LUNETA
MODERATOR:	DR. JP MAKONYE

(This paper consists of 3 pages)

INSTRUCTIONS

Read the following instructions carefully before answering the questions.

1. This question paper consists of 6 questions divided into several parts

2. Answer ALL the questions

3. No calculators are allowed in this examination

QUESTION 1

1.1 i. The fractional chart is a good teaching aid for introducing fractions, what are its disadvantages in a Grade 4 class? (2)

ii. Draw one that is made up of 4 different fractions from a single rectangular whole. (2)

1.2 With the aid of examples state five types of fractions discussed in this course.

(8)

1.3 In point form, explain the steps to follow in order to SUBTRACT fractions with different denominators.

(4)

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QUESTION 2

2.1 Find solutions to the following problems

i. $\dfrac{1}{15} \times \dfrac{1}{3}$ ii. $\dfrac{5}{8} \div \dfrac{1}{12} \div \dfrac{2}{3}$ iii. $\dfrac{1}{11} + \dfrac{7}{12}$ iv. $\dfrac{7}{10} - \dfrac{1}{5}$

(8)

2.2. Simplify the problem below and find the answer

$$\dfrac{\dfrac{3/4}{9/8}}{\dfrac{8/7}{4/5}}$$

(4)

2.3. Calculate and express your answers in the simplest form

i. $5 + \dfrac{4}{12} + \dfrac{3}{24}$ **(4)**   ii. $3\dfrac{1}{4} + 5\dfrac{3}{8}$ (3) iii. $4\dfrac{1}{2} \times 2\dfrac{3}{4} \div 3\dfrac{2}{3}$ (3)

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QUESTION 3

3.1 Find answers to the following problems.

i. 2.2 x 0.01   ii. 6.201+ 426.002 +0.001356

iii. 12.00115 – 8.101955   iv. 0.0099 ÷0.003

(10)

3.2. Convert the following decimal numbers to fractions.

i. 0.210   ii. 0.00052

iii. 0.30018   iv. 4.12   (8)

QUESTION 4

Simplify (and evaluate where necessary). Give the answer in its simplest form positive exponents.

4.1 $8y^{-2} \cdot y^{-32} \cdot y^{55}$ (4)

4.2 $(4m^{-4}n^8)^3$ (4)

4.3 $\left(\dfrac{x^{-\frac{3}{4}}y^4}{y^{-\frac{1}{2}}x^{\frac{1}{2}}}\right)^4$ (4)

4.4 $\left(6t\,\dfrac{m^9k^3}{m^6k^8}\right)^2$ (4)

4.5 $2^{\frac{1}{2}}2^{\frac{5}{2}} + 3\sqrt[4]{81}$ (4)

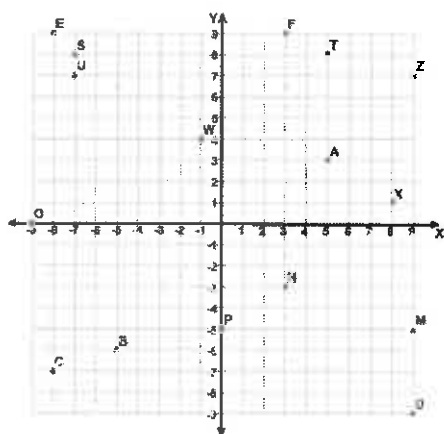## QUESTION 5

Follow the instructions

5.1   Make **M** the subject of the formula in the equation $F = \frac{3}{5}Mv^2 - 3\sqrt{S}$ (3)

5.2   Find the value of $s = ut + \frac{1}{2}at^2$ if $u = -4$; $t = \frac{1}{4}$ and $a = 16$ (3)

5.3   Find the value of **v** if $\dfrac{81}{v^{-4}} = v^6$ (4)

5.4   Give the coordinates of points **A, D, S, P, O**   (5)
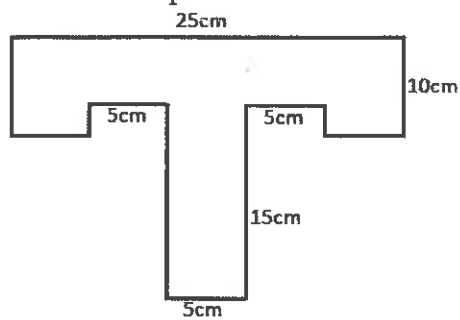
5.5   Calculate the area of a $\triangle PMD$ formed by points P, M and D.   (4)

5.6   Give the coordinates of the points and name the shape formed when points E, C, H and F are joined.   (3)

5.7   Calculate the perimeter as well as the area of the shape in **5.6**)?   (4)

QUESTION 6

6.1 Find the perimetre in metres of the figure below

(4)

6.2 Define and draw angles that are

i.	Compelementry	(2)
ii.	Supplementary	(2)
iii.	Congruent	(2)

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6.3 Draw the following angles

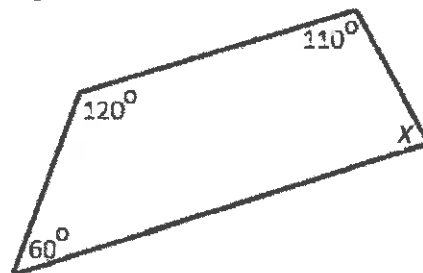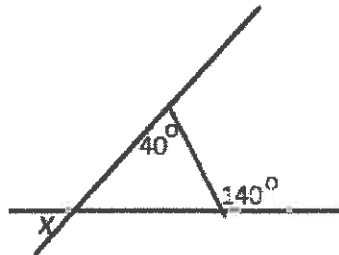|		
i.	Acute angle	(2)
ii.	Reflex angle	(2)
iii.	An obtuse angle	(2)

[6]

6.4 Find the values of x in the figures below

[4]

END OF EXAMINATION   ----oOo----   **TOTAL: 100**