UNIVERSITY OF JOHANNESBURG
FACULTY OF EDUCATION

JUNE SUPPLEMENTARY EXAMINATION 2016

PROGRAMME: FOUNDATION & INTERMEDIATE PHASE MATHEMATICS

MODULE: MATINA and MATHEMATICS FOR TEACHING FOUNDATION
PHASE 1A

CODE: MFP10A1 and MATINA1

TIME: 2 hr

MARKS: 100

EXAMINERS: PROF. K. LUNETA

MODERATORS: Dr J. P. MAKONYE

(This paper consists of 2 pages)

INSTRUCTIONS:

Read each question carefully before answering it. Answer all the questions.
Questions can be answered in any sequence but ensure that you clearly number
your answers. <u>NO CALCULATORS ALLOWED</u>

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1. Define number sense   [2]
2. Explain what you understand by a number system in mathematics?   [2]
3. Names 4 numbers systems that you know and for each system write the first five numerals
                                                                                                                                      [8]
4. Write down the following sets.
    i.   Set of square numbers less than 60
    ii.   Set of factors of 27   [4]
5. Define the following terms in set theory
    i.   Power set
    ii.   Subset set   [4]

6. Given that E the universal set is {the set of whole numbers less than 20} and that set A={ Positive factors of 16 less than 20}; B={Positive multiples of 6 less than 20}; C={Prime number less than 20}. Draw the Venn diagram that represents the sets E, A, B, and C. Find,
   i.   A∩B∩C
   ii.   n[(AUB)' ∩ (BUC)']
   iii.   How man subsets has the set A∩B∩C   [10]
7. a. Convert the following to their respective bases from base 10
         i.   265 to base 2
         ii. 2311 to base 3   [4]
   b. Convert the following to base 10
         i. 1211_5
         ii. 106_7 [4]

   c. Write 5249 in Roman numerals   [4]
8. With the aid of examples define the following mathematical terms
         i.   Number bonds
         ii.   Number
         iii. Digit
         iv.   Place value
         v.   Numeral   [10]
9. What is one of the functions of the number "0" in the Hindu-Arabic number system   [2]
10. Determine the place value charts for the following number in their respective bases
         i.   251427.525
         ii. 1131.23_4
         iii. 1010101.0110_2 [6]
11. Write the following number patterns
         i.   Any Febonacci series
         ii.   Any Arithmetic sequence
         iii. Any Geometric sequence
         iv.   cubic numbers
                                                                                      [8]
12. Find answers to the following problems
         i.   877878367 + 89378365 + 231726573 + 4261797   (2)
         ii.   284 x 47   (4)
         iii. 87354132 – 4562789   (2)
         iv.   31863 ÷ 13   (4)   [12]
13. a. Write the following in expanded notation: i. 89741   (2)   ii. 0.1254   (4)   [6]
    b. Write the following in standard form correct two significant figure: i. 0.0931 ii. 87.52 (4)
    c. Write the name of the number: 1 562 123 759   (2)
    d. Write the place value chart for the following
    i. 67826. 43261   (2)
    ii. 221.213_4 (2)
14. State four rules of significant digits   [4]

END OF THE EXAMINATION