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DISCRETE MATHEMATICS (DBM2033)
Session December 2017
MODEL EXAM PAPER (QUESTION 2)

Instructions

- Answer ALL questions. Write your answers in the spaces provided.
- Show your working. You may use a non-programmable scientific calculator.

Question 1

Given the universal set $\xi = \{x | 20 \leq x \leq 40\}, K = \{\text{the number that end with 1, 7 or 9}\}, M = \{\text{multiple of 3}\}$ and $N = \{\text{factor of 200}\}$.

(a) Write set *K*, *M* and *N* by listing their elements.
(b) Draw the Venn Diagram to represent the above set.
(c) Write each of the following set by listing their element.

Question 2

Given R = {(1, 1), (2, 2), (2, 3), (3, 2), (3, 3), (3, 4), (4, 3), (4, 4), (5, 5)} on set A = {1, 2, 3, 4, 5}. Is R an equivalence relation on A? Explain your answer.

Question 3

Determine whether the given function $f(x) = -2x$ and $g(x) = -\frac{x}{2}$ are inverses.

Question 4

(a) Given $f(x) = 6x + 2$ and $g(x) = x - 5$, solve $g(f(3))$.
(b) Solve $\lceil -3.33 + 2.22 \rceil \times \lfloor -1.11 - 4.44 \rfloor$.