POLITEKNIK MALAYSIA KUCHING SARAWAK

POLITEKNIK KUCHING SARAWAK

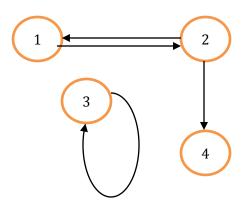
Mathematics, Science and Computer Department



DISCRETE MATHEMATICS (DBM2033) Session December 2017 SELF-EXERCISE 6

Instructions

- Answer ALL questions. Write your answers in the spaces provided.
- Show your working. You may use a non-programmable scientific calculator.
- 1. Given $A = \{a, b, c, d, e\}$ and $B = \{2, 4, 5\}$. Find the $|A \times B|$.
- 2. Define disjoint set between two sets. Give an example to support your definition.
- 3. Given $A = \{1, 2, 3\}$ and $B = \{x, y, z\}$. Let $R = \{(1, y), (1, z), (3, y)\}$. Answer the following questions:
 - (a) Find the domain and range of *R*.
 - (b) Draw the arrow diagram of *R*.
 - (c) Find the $|B \times A|$.
 - (d) State True or False for the following.
 - (i) 1Rz
 - (ii) $(3, z) \in R$
 - (iii) 2Ry
- 4. Let $A = \{1, 2, 3, 4\}$ and R is the relation on A that is represented by the digraph below.



Translate the digraph into *R*.