HW8 (CSCI-C241)

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1. Question One

   (a) R_1 is not a function, because $R(1,2)$ and $R(1,3)$ but $2 \neq 3$

   (b) R_2 is a totalfunction, because each member of A is related to a single member of A

   (c) R_3 is a partial function, because each member of B is not related to more than a single member of B

   (d) P_2 is a partial function, because it has uniqueness but $P\,(0*y \neq 120)$

   (e) P_2 is a total function (zero not included), because if a number multiplied by another is equal to 120, then the first number can not be multiplied by any other number to equal 120

2. Question Two

   (a) f_1 is not one-to-one, because $f_1(a) = f_1(d)$ but $a \neq d$

   (b) f_1 is not onto, because $a \in B$ but no members of B relate to a

   (c) f_2 is one-to-one, because every member of B is related to only one member of B

   (d) f_2 is onto, because every member of B has at least one member of B related to itself

   (e) Part (e)

   (f) Part (f)

   (g) Part (g)

   (h) Part (h)

   (i) Part (i)

   (j) Part (j)

   (k) Part (k)

   (l) Part (l)

   (m) Part (m)

   (n) Part (n)

   (o) Part (o)

3. Question Three

   (a) Part (a)

   (b) Part (b)

   (c) Part (c)

   (d) Part (d)

   (e) Part (e)

   (f) Part (f)

   (g) Part (g)

   (h) Part (h)

   (i) Part (i)

   (j) Part (j)

   (k) Part (k)

   (l) Part (l)

   (m) Part (m)

(n) Part (n)

4. Question Four

    (a) Part (a)

        Proof.

(1)

□

    (b) Part (b)

        Proof.

(1)

□

5. Question Five

    (a) Part (a)

        Proof.

(1)

□

    (b) Part (b)

        Proof.

(1)

□

6. Question Six

    (a) Part (a)

        Proof.

(1)

□

    (b) Part (b)

        Proof.

(1)

□

7. Question Seven

    (a) Part (a)