HW14a

Sunday, March 12, 2023 9:17 PM

1. Evaluate each of the following:

a) $2^{|A|}$ where A = {a, b, c}

b) 2^{A} where A = {a, b, c}

c) 2^{C} where C = ∅

d) 2^{D} where D = {∅}

e) $|2^{E}|$ where E = {∅, {∅}}

f) $|2^{F}|$ where |F| = 10

a) 8
b) { Ø, {a}, {b}, {c}, {a,b}, {a,c}, {b,c}, {a,b,c} }
c) {Ø}
d) {Ø, {Ø}}
e) 4
f) 1024

2^{E} = {Ø, {Ø}, {Ø, Ø}, {Ø, Ø} }

2. Let the universe U = {q, w, e, r, t, y, u, i, o, p} and let G = {q, w, r, t, y, u, i} and H = {w, r, y, i, p}. Give the bit string representation for the following expressions. In your representations, assume that the sequence for the elements is <q, w, e, r, t, y, u, i, o, p>.

a) G

b) H

c) G ∩ H

d) G ∪ H

e) G – (~H)

U = q w e r t y u i o p
G = q w r t y u i
H = w r y i p

a) G
q w e r t y u i o p
1 1 0 1 1 1 1 1 0 0

b) H
q w e r t y u i o p
0 1 0 1 0 1 0 1 0 1

c) G ∩ H
q w e r t y u i o p
0 1 0 1 0 1 0 1 0 0

d) G ∪ H
q w e r t y u i o p
1 1 0 1 1 1 1 1 0 1

e) G – (~H)
q w e r t y u i o p
0 1 0 1 0 1 0 1 0 0

~H
q w e r t y u i o p
1 0 1 0 1 0 1 0 1 0

G
q w e r t y u i o p
1 1 0 1 1 1 1 1 0 0