A 1.

A 5+14+5 = 24

5/5

i

ii = Y=0)

=

iii F shee p\X=1, Y=1, Z=0 z - = = =

=

=

= -

=

- =

=

N. = = =

=

=

=

)

B 2

8/9

=

Z | Y

=

=

Z

Z.

Intuition?

= Z=0 Z=

=

=

and $I(Y;Z) = H(Z) - H(Z|Y)$

$= 1 - 0 = 1$

i.e $I(X;Y) < I(Y;Z)$

B 3

i $E[Z] = E[X] + E[Y] = 8000$ ✓ 1

4/4

ii $P(Z \geq a) < \frac{E[Z]}{a}$

$P(Z \geq 20{,}000) < \frac{E[Z]}{20{,}000}$

$= 0.4$ ✓ 2

11. since X and Y are dependent, exploring every possible combination and count is tedious ✓ 1