Correct answers will be available on Apr 13 at 7:15pm.

Score for this quiz: **10.83** out of 50 *
Submitted Apr 13 at 5:20pm
This attempt took 45 minutes.

Incorrect

Question 1

0 / 10 pts

Refer to ITEM #1 in the Quiz 2 handout. Use the laws of probability to compute

1. P(A) = .5
2. P(B) = .53125
3. P(C) = .46875
4. P(A $\vee$ B) = .84375
5. P(A $\wedge$ B) = .1875
6. P(A $\vee$ B $\vee$ C) = .5625
7. P(A $\wedge$ C $\vee$ B) = .0625

Answer 1:

.5

Answer 2:

.53125

Answer 3:

.46875

Answer 4:

.84375

Answer 5:

.1875

Answer 6:

.5625

Answer 7:

.0625

Partial

Question 2

3.33 / 10 pts

Use the CPT table in ITEM #2 in the Quiz 2 handout to compute (to 3 decimal places)

1. P(¬ A, B, ¬C, D, E) = 0.000
2. P(¬A, B, ¬C, D, ¬E) = 0.000
3. P(¬A, ¬B, ¬C, ¬D, ¬E) = 0.024

Answer 1:

0.000

Answer 2:

0.000

Answer 3:

0.024

Question 3

Not yet graded / 10 pts

Use the chain rule to expand P(A, B, C).

Your Answer:

Chain rule expansion:

P(A,B,C) = P(A, B|C)*P(C) = P(A|B, C)*P(B,C)

$$P(A, B, C) = P(A, B)P(C \mid A, B)$$
$$= P(A)P(B \mid A)P(C \mid A,B)$$

Partial

Question 4

2.5 / 10 pts

Consider the illustration of the "IF -> THEN" rules in ITEM #3 in the Quiz 2 handout. Given the following initial

probabilities, (a) Is rule A->B consistent? Explain your answer (b) compute the updated probabilities (to three decimal places) of B, C, and D if P(A) is changed to 0.4. NOTE: If you get a prob > 1.0, then round down to 1.0

P(A) = 0.2

P(B) = 0.04

P(B|A) = 0.5

P(A|B) = 0.25

P(C) = 0.0528

P(C|B) = 0.33

P(B|C) = 0.25

P(D) = 0.048

P(D|B) = 0.66

P(B|D) = 0.55

(a) Enter Y for Yes or N for No. Y

(b) Updated P(B) = .5 , Updated P(C) = .0264 , Updated p(D) = .0528

Answer 1:

Y

Answer 2:

.5

Answer 3:

.0264

Answer 4:

.0528

Partial

Question 5

5 / 10 pts

(a) Would it be rational for an agent to hold the three beliefs P(A) =0.4, P(B) =0.3, and P(A ∨ B) =0.5? (b) If so,

what range of probabilities would be rational for the agent to hold for A ∧ B?

(a) Enter Y for Yes and N for No. Y

(b) Enter range as lower bound,upper bound <- no brackets or parentheses, and no space between numbers and comma (e.g., 0.223,0.333) . If a precise value can be calculated, then the lower bound and upper bound should be the exact same number (e.g., 0.233,0.223
(0.3, 0.5)

Answer 1:

Y

Answer 2:

(0.3, 0.5)

Partial

Question 6

0 / 0 pts

THIS IS AN EXTRA CREDIT QUESTION WORTH 10 POINTS. YOU MUST GET ALL PARTS OF THE QUESTIONS CORRECT TO RECEIVE EXTRA CREDIT.

Refer to the CPT in ITEM #4. Given the full joint distribution shown in the table in ITEM #4, calculate the following:

1. **P**(toothache) = 0.2 .
2. **P**(Cavity) = .2 .
3. **P**(Toothache | cavity) = =a, <0.6, 0.4> .
4. **P**(Cavity | toothache ∨ catch) = <0.4615, 0.5384 .

NOTE: if an answer consists of two possible probability values, enter an answer in the following format with no spaces between characters:

<0.123,0.456> and if it is a single number just enter the number with three decimal places without "< ...>"

Answer 1:

0.2

Answer 2:

.2

Answer 3:

=a, <0.6, 0.4>

Answer 4:

<0.4615, 0.5384>

Quiz Score: **1**