PRINTABLE VERSION

Quiz 2

You scored 100 out of 100

Question 1

Your answer is CORRECT.

Hospital records show that 22% of all patients are admitted for heart disease, 30% are admitted for cancer (oncology) treatment, and 4% receive both coronary and oncology care. What is the probability that a randomly selected patient is admitted for something other than coronary care? (Note that heart disease is a coronary care issue.)

a) 0.66

b) 0.78

c) 0.74

d) 0.96

e) 0.70

f) None of the above.

Question 2

Your answer is CORRECT.

Given:

$$P(E) = 0.44,\ P(F) = 0.47, \text{ and } P(E \cup F) = 0.71$$

Find $P(E \cap F)$.

a) 0.29

b) 0.20

c) 0.21

d) 0.79

e) 0.80

Question 3

Your answer is CORRECT.

Given:

$$P(E) = 0.27,\ P(F) = 0.46,\ \text{and}\ P(E \cap F) = 0.11$$

Find $P(E \mid F)$.

a) 0.76

b) 0.12

c) 0.88

d) 0.24

e) 0.41

Question 4

Your answer is CORRECT.

Employment data at a large company reveal that 75% of the workers are married, 40% are college graduates, and that 30% are married and are college graduates. Which of the following statements are true about the events married and college graduate?

a) A worker is either married or a college graduate always.

b) These events are pairwise disjoint.

c) These events are both independent and pairwise disjoint.

d) These events are independent events.

e) None of these above are true.

Question 5

Your answer is CORRECT.

The union of two events A and B is the event that:

a) The intersection of A and B does not occur.

b) Either A or B or both occur.

c) Either A or B, but not both occur.

d) Both A and B occur.

e) A and B occur at the same time.

f) None of the above

Question 6

Your answer is CORRECT.

The intersection of two events A and B is the event that:

a) The union of A and B does not occur.

b) The union of A^c and B^c occurs.

c) Either A or B, but not both.

d) Both A and B occur.

e) Either A or B or both occur.

f) None of the above.

Question 7

Your answer is CORRECT.

Select the false statement involving P, and the arbitrary events A and B.

a) $P(A \cap B^c) = P(A) - P(A \cap B)$

b) $P(A^c \cap B) = P(B) - P(A \cap B)$

c) $P(A^c \cap B^c) = P(A^c)P(B^c)$

d) $P(A^c) + P(A) = 1$

e) $P(A \cap B) = P(A) + P(B) - P(A \cup B)$

f) None of the above.

Question 8

Your answer is CORRECT.

The probability that a randomly selected person has high blood pressure (the event H) is P(H) = 0.3 and the probability that a randomly selected person is a runner (the event R) is P(R) = 0.4. The probability that a randomly selected person has high blood pressure and is a runner is 0.2. Select the false statement.

a) $P(H \cap R^c) = 0.1$

b) $P(R \cup H) = 0.5$

c) ○ H and R are not mutually exclusive.

d) ◉ H and R are independent events.

e) ○ $P(R^c \cup H^c) = 0.8$

f) ○ None of the above.

Question 9

Your answer is CORRECT.

The probability that a randomly selected person has high blood pressure (the event H) is P(H) = 0.3 and the probability that a randomly selected person is a runner (the event R) is P(R) = 0.4. The probability that a randomly selected person has high blood pressure and is a runner is 0.2. Find the probability that a randomly selected person has high blood pressure, given that he is a runner.

a) ○ 0.67

b) ○ 1

c) ◉ 0.50

d) ○ 0

e) ○ 0.29

f) ○ None of the above.

Question 10

Your answer is CORRECT.

The probability that a randomly selected person has high blood pressure (the event H) is P(H) = 0.5 and the probability that a randomly selected person is a runner (the event R) is P(R) = 0.2. The probability that a randomly selected person has high blood pressure and is a runner is 0.1. Find the probability that a randomly selected person is a runner, given that he has high blood pressure.

a) ○ 1

b) ◉ 0.20

c) ○ 0.14

d) ○ 0

e) ○ 0.50

f) ○ None of the above.

Question 11

Your answer is CORRECT.

The probability that a student correctly answers on the first try (the event A) is P(A) = 0.3. If the student answers incorrectly on the first try, the student is allowed a second try to correctly answer the question (the event B). The probability that the student answers correctly on the second try given that he answered incorrectly on the first try is 0.6. Find the probability that the student correctly answers the question on the first or second try.

a) ○ 0.90

b) ◉ 0.72

c) ○ 0.51

d) ○ 0.18

e) ○ 0.54

f) ○ None of the above.

Question 12

Your answer is CORRECT.

A large scale study conducted over a one year period has shown that break-ins at home occur about 6% of the time in the population. The study also shows home security alarms went off 3% of the time when no one was breaking into the home. The security alarm *failed* to go off 7% of the time when someone was really breaking into the home. What is the probability that a home has been broken into and the alarm went off?

a) ○ 0.4442

b) ○ 0.9300

c) ◉ 0.0558

d) ○ 0.0042

e) ○ 0.9958

f) ○ None of the above.

Question 13

Your answer is CORRECT.

A large scale study conducted over a one year period has shown that break-ins at home occur about 6% of the time in the population. The study also shows home security alarms went off 3% of the time when no one was breaking into the home. The security alarm *failed* to go off 4% of the time when someone was really breaking into the home. If an alarm is going off, what is the probability that the house was broken into?

a) ○ 0.1713

b) ○ 0.0576

c) ○ 0.9424

d) ◉ 0.6713

e) ○ 0.9600

f) ○ None of the above.