ASSIGNMENT 1

Question 1

Not answered

Marked out of 1.00

A batch contains 52 bacteria cells. Assume that 13 of the cells are not good. Five cells are sele
replacement. What is the probability that all five cells of the selected cells are not good?

select at random, without

- a. 0.495
- b. None of the other choices is correct
- c. 0.25
- d. 0.221

Question 2

Not answered

Marked out of 1.00

A computer program is tested by 5 independent tests. When there is an error, each of these tests will discover it with probability 0.4. Suppose that the program contains an error. What is the probability that it will be found by at least one test?

a. 0.9

b. None of these

c. 0.92224

d. 0.9875

e. 0.6

Question 3

Not answered

Marked out of 1.00

An automobile company has three different production sites. 4% of the cars from Site 1, 5% from Site 2, and 6% from Site 3 have been recalled due to a faulty brake system. Suppose that 50% of the cars are produced at Site 1, 30% at Site 2, and 20% at Site 3.

If a randomly selected car has been recalled, what is the probability that it came from Site 1? (Round to 3 decimal places.)

a. 0.319

b. 0.426

c. None of these

d. 0.255

Question 4

Not answered

Marked out of 1.00

An e-mail filter is planned to separate valid e-mails from spam. The word "free" occurs in 80% of the spam messages and only 5% of the valid messages. Also, 20% of the messages are spam.
Find the probability that the message is spam given that it contains "free".

a. None of these

b. 0.8

c. 0.75

d. 0.6

e. 0.9

Question 5

Not answered

Marked out of 1.00

There is a 1% probability for a **hard drive** to **crash**. Therefore, it has one backup having a 2% probability to crash, and two components are **independent**. The stored information is lost when both two devices crash.

What is the probability that the information is saved?

a. 0.97

b. 0.9998

c. None of these

d. 0.98

e. 0.99

Question 6

Not answered

Marked out of 1.00

Given $P(A) = 0.3$, $P(B \mid A) = 0.4$, and $P(C \mid A \cap B) = 0.5$, find $P(A \cap B \cap C)$.

- a. 0.2
- b. 0.12
- c. None of these
- d. 0.15
- e. 0.06

Question 7

Not answered

Marked out of 1.00

Computer keyboard failures are due to faulty electrical connects (12%) or mechanical defects (88%). Mechanical defects are related to loose keys (27%) or improper assembly (73%).
Find the probability that a failure is due to loose keys. Round to 2 decimal places.

- a. 0.09
- b. 0.03
- c. 0.24
- d. 0.64

Question 8

Not answered

Marked out of 1.00

Given P(A) = 0.3, P(B) = 0.3, P(C) = 0.8 and P(A|C) = 0.3, and A and B are mutually exclusive.

State True or False

(i) A and B are independent

(ii) A and C are independent

a. False, False

b. False, True

c. True, True

d. True, False

Question 9

Not answered

Marked out of 1.00

A sample preparation for a chemical measurement is completed correctly by 25% of the lab technicians, completed with a minor error by 72% and completed with a major error by 3%.
a) If a technician is selected randomly to complete the preparation, what is the probability it is completed without error?
b) what is the probability that it is completed with either a minior or a major error?

- a. 0.25 and 0.75
- b. 0.25 and 0.25
- c. None of the other choices is correct
- d. 0.75 and 0.25
- e. 0.75 and 0.75

Question 10

Not answered

Marked out of 1.00

A campus program evenly enrolls undergraduate and graduate students. If a random sample of 4 students is selected from the program to be interviewed about the introduction of a new fast food outlet on the ground floor of the campus building, what is the probability that all 4 students selected are undergraduate students?

- a. 0.16
- b. 1.00
- c. 0.0256
- d. 0.0625

Question 11

Not answered

Marked out of 1.00

Given $P(A|B) = 0.4$, $P(B) = 0.5$, find $P(A \cap B)$.

a. 0.8

b. 0.3

c. 0.6

d. 0.2

e. 0.1

Question 12

Not answered

Marked out of 1.00

A group of students were asked if they carry a credit card. The responses are listed in the table.
If a student is selected at random, find the probability that he or she owns a credit card given that the student is a freshman.
Round your answer to three decimal places.

Class	Credit Card Carrier	Not a Credit Card Carrier	Total
Freshman	24	36	60
Sophomore	37	3	40
Total	61	39	100

a. 0.393

b. 0.600

c. 0.240

d. None of the other choices is correct

e. 0.400

Question 13

Not answered

Marked out of 1.00

Among 20 computers in a store, six have defects. The University Lab bought at random 4 computers.
What is the probability that at least one computer has defects?
Round to 2 decimal places.

a. 0.21
b. 0.79
c. 0.62
d. None of these
e. 0.38

Question 14

Not answered

Marked out of 1.00

Given P(A | B) = 0.6, P(A) = 0.4, and P(B) = 0.2, find P(B | A)

a. 0.17

b. 0.1

c. 0.3

d. None of these

e. 0.2

Question 15

Not answered

Marked out of 1.00

In the 2012 presidential election, exit polls from the critical state of Ohio provided the following results:

Total	Obama	Romney
No college degree (60%)	52%	45%
College graduate (40%)	47%	51%

What is the probability a randomly selected respondent voted for Romney?

a. None of these

b. 0.96

c. 0.48

d. 0.474

e. 0.5

Question 16

Not answered

Marked out of 1.00

A group of 10 individuals are used for a biological case study. The group contains 3 people with blood type 0, 7 with blood type A. What is the probability that a random sample of 5 will contain 1 person with blood type 0, 4 people with blood type A.

a. 0.45
b. 0.48
c. 0.51
d. 0.42
e. None of the other choices is correct

Question 17

Not answered

Marked out of 1.00

Two events A and B are such that $P(A \cap B) = 0.25$,$P(A \cup B)=0.65$ and $P(A|B)=0.5$. Find $P(B|A)$.

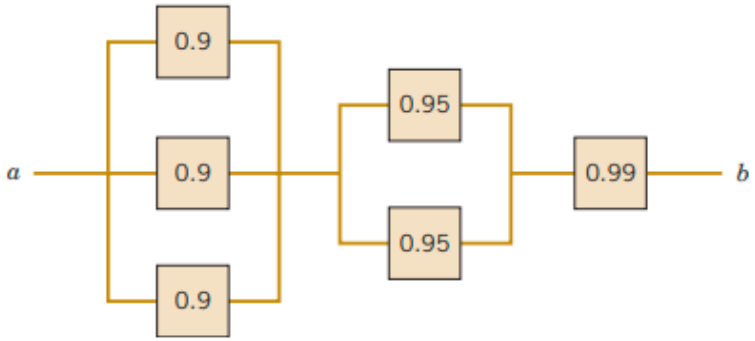
a. 0
b. 0.35
c. 1.15
d. 0.5
e. None of the other choices is correct
f. 0.3

Question 18

Not answered

Marked out of 1.00

The following circuit operates only if there is a path of functional devices from left to right. The probability that each device functions is shown on the graph.
Assume that devices fail independently. What is the probability that the circuit operates? Round to 3 decimal places.



a. 0.998

b. 0.987

c. 0.995

d. None of these

e. 0.985

Question 19

Not answered

Marked out of 1.00

Two Web colors are used for a site advertisement with given probabilities:

Ad color	Affiliate (30%)	Search (70%)
Blue	0.7	0.4
Green	0.3	0.6

What is the probability that a visitor is from a **search site** given that the **green** ad was viewed?
Round to 2 decimal places.

- a. 0.82
- b. 0.18
- c. 0.42
- d. None of these
- e. 0.6

Question 20

Not answered

Marked out of 1.00

A computer program consists of two blocks written independently by two different programmers. The first block and the second block have an error with probability 0.3 and 0.4, respectively.

Suppose that the program returns an error. What is the probability that there is an error in the **first block**?

(round to 2 decimal places)

- a. 0.69
- b. 0.21
- c. 0.52
- d. 0.33
- e. 0.12

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