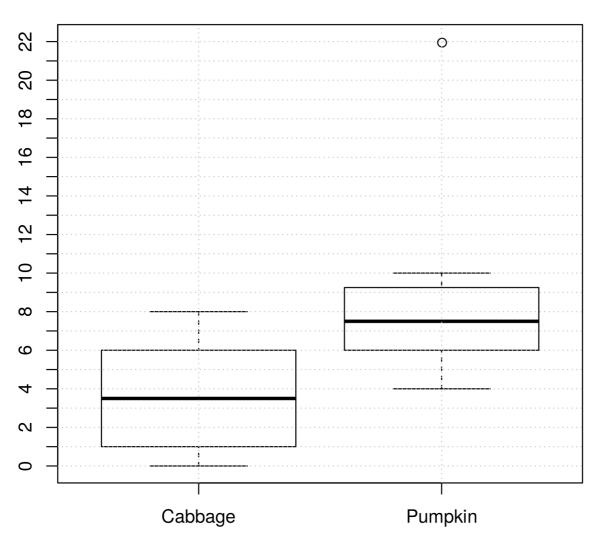|	
Started on	Tuesday, 28 December 2021, 12:46 PM
State	Finished
Completed on	Tuesday, 28 December 2021, 12:51 PM
Time taken	4 mins 58 secs
Marks	17.00/18.00
Grade	**9.44** out of 10.00 (**94**%)

Question **1**

Correct

Mark 1.00 out of 1.00

Below there are two box plots that are shown.

Which vegetable has a higher median weight ?

Pumpkin

✔

The correct answer is: Pumpkin

Mark 1.00 out of 1.00

Which data set has the lesser number of outliers ?

Cabbage

✔

The correct answer is: Cabbage

Mark 1.00 out of 1.00

Which vegetable has a larger range of weights ?

Pumpkin

✔

The correct answer is: Pumpkin

Mark 1.00 out of 1.00

Question **2**

Correct

Mark 1.00 out of 1.00

A professor in an English course constructs a final exam by selecting four questions at random from a list of nine questions handed out in advance to the students. Suppose that a particular student has time to prepare answers to the first six of the nine questions. The probability that the student will be prepared for at least three of the four questions on the exam is

| 0.5952 |

✔

The correct answer is: 0.5952

Mark 1.00 out of 1.00.

Give your answer rounded up to four decimal digits.

Question **3**

Correct

Mark 1.00 out of 1.00

Sambhavi has just finished a two sample t-test for equality in means between populations

x and y. She concludes that the null hypothesis can be rejected at a level of significance 0.05. A

best possible estimate for the probability that the two datasets came from distributions having

the same mean is :

- ○ a. 1/19
- ○ b. 16.5
- ⦿ c. 1/20   ✔
- ○ d. 1/21

Your answer is correct.

The correct answer is:
1/20

Question **4**

Correct

Mark 1.00 out of 1.00

Suppose that it takes at least 3 votes from a 4 member jury to convict a defendant. Also assume that the probability that a juror votes a guilty person innocent is 0.2, whereas the probability that a juror votes an innocent person guilty is 0.1. If each juror acts independently and 65% of defendants are guilty, probability that the jury renders a correct decision is

| 0.8642 |

✔

The correct answer is: 0.8642

Mark 1.00 out of 1.00.

Give your answer rounded up to four decimal digits.

Question **5**

Correct

Mark 10.00 out of 10.00

Suppose that X and Y have joint distribution given by f (x, y) = x + y for 0 ≤ x, y ≤ 1 and 0 otherwise. Then which of the below is the cumulative distribution function of Z = X + Y is:

(a)

$$F_Z(z) = \begin{cases} 0 & \text{if } z \leq 0, \\ \frac{1}{3}z^3 & \text{if } 0 \leq z \leq 1, \\ z^2 - \frac{1}{3} - \frac{1}{3}z^3 & \text{if } 1 \leq z \leq 2, \\ 1 & \text{if } z \geq 2. \end{cases}$$

(b)

$$F_Z(z) = \begin{cases} 0 & \text{if } z \leq 0, \\ \frac{1}{3}z^3 & \text{if } 0 \leq z \leq 1, \\ z^2 - \frac{1}{3} - \frac{1}{9}z^3 & \text{if } 1 \leq z \leq 2, \\ 1 & \text{if } z \geq 2. \end{cases}$$

(c)

$$F_Z(z) = \begin{cases} 0 & \text{if } z \leq 0, \\ \frac{1}{3}z^3 & \text{if } 0 \leq z \leq 1, \\ z^2 - \frac{1}{6} - \frac{1}{3}z^3 & \text{if } 1 \leq z \leq 2, \\ 1 & \text{if } z \geq 2. \end{cases}$$
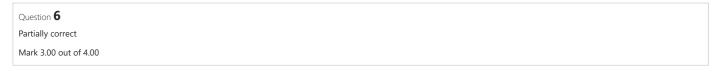
○ a.   b

◉ b.   a   ✔

○ c.   c

Your answer is correct.

The correct answer is:

a

Question **6**

Partially correct

Mark 3.00 out of 4.00

We wish to find the probability that a certain coin will fall on its head when tossed.

(Suppose p = 0.4 is the probability heads and H is the number of heads in 100 tosses.

The value of E[H] is

| 40 |

✔

The correct answer is: 40

Mark 1.00 out of 1.00.

.

Suppose p = 0.3 is the probability heads and H is the number of heads in 100 tosses.

The value of Var[H] is

| 21 |

✔

The correct answer is: 21

Mark 1.00 out of 1.00.

.

(c) (1 point) Suppose we know that 0.6 < p < 0.9, the largest value of (1-p)/p is

| 0.66 |

✖ .

Give your answer rounded up to two decimal digits.

.

Suppose Z is Normal (0, 1) random variable. Then the minimum value of z for which $P(|Z| \le z) \ge 0.95$ is 1.96. Now suppose we know that 0.6 < p < 0.9, minimum number of trials needed in order that we can be 95% sure that the observed frequency differs from p by less than p/10 is

| 257 |

✔

The correct answer is: 257

Mark 1.00 out of 1.00.

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◄ Quiz 11

Jump to...

Final Exam Part(b) ►