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Courses » Probability and Statistics

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Unit 7 - Week 5

Register for Certification exam

Course outline

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Assignment 5

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2019-03-06, 23:59 IST

1) 1 point

IQ levels of the candidates for a particular job selection are normally distributed with mean and standard deviation 5. Find the approximate probability that a randomly selected candidate has IQ level between 85 and 95.

- a. 0.251
- b. 0.317
- c. 0.682
- d. 0.749

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

2) 1 point

In Question 1, suppose four candidates are randomly selected. Find the approximate probability that least two of them have IQ levels between 85 and 95.

- a. 0.097
- b. 0.903
- c. 0.734
- d. 0.266

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

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Assignment Solution

The time (in minutes) between arrivals of customers at an ATM machine is exponentially distributed random variable with mean 10 minutes. What is the probability that starting at 9: a.m., the third customer will arrive within fifteen minutes?

- a. $1 - \frac{29}{8}e^{-\frac{3}{2}}$
- b. $1 - \frac{29}{16}e^{-\frac{3}{2}}$
- c. $1 - \frac{29}{8}e^{-\frac{2}{3}}$
- d. $1 - \frac{29}{16}e^{-\frac{2}{3}}$

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

4)

1 point

Trains arrive and depart at Kanpur railway station according to a Poisson process at a rate of one train per three minutes. What is the probability that between 2:00 p.m. to 3:00 p.m. the number of trains arriving or departing is at least 17 and not more than 25? Use normal approximation with continuity corrections.

- a. 0.477
- b. 0.523
- c. 0.327
- d. 0.672

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

d.

5)

1 point

Let X be a normal distribution with mean μ and variance σ^2 . Let $Z = \frac{X - \mu}{\sigma}$. Suppose $Z = -1.25$ when $X = 40$ and $Z = 1.98$ when $X = 60$. Find the $P(|X - 40| > 10)$?

- a. 0.182
- b. 0.643
- c. 0.358
- d. 0.818

- a.
- b.

- c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

- 6) Let X be a continuous random variable with the density function given by

1 point

$$f_X(x) = \begin{cases} \frac{1}{6} \left(1 - \frac{|x|}{6} \right), & -6 < x < 6 \\ 0, & \text{otherwise} \end{cases}$$

Find the probability $P(|X| \leq 5)$.

- a. $\frac{1}{36}$
b. $\frac{35}{36}$
c. $\frac{3}{36}$
d. $\frac{32}{36}$

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

- 7) Let X denote the hitting time (in second) of a bullet in a given target. Assume X follows a normal distribution with mean 1.5 and standard deviation 0.9. Between what two values will X fall approximately with probability 0.95?

1 point

- a. [0.231 26.04]
b. [0.768 26.04]
c. [0.771 16.34]
d. [0.231 16.34]

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

- 8)

1 point

The time (in hours) required to a repair an LCD TV is exponentially distributed with mean 5. What is the probability that a repair requires less than 5 hours given that it will require at least 5 hours?

- a. $e^{-\frac{2}{5}}$
- b. e^{-10}
- c. $1 - e^{-10}$
- d. $1 - e^{-\frac{2}{5}}$

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

d.

9)

1 point

In a probability and statistics class, the total number of students is 200. A professor gives a question to the students as a surprise test. The probability that a randomly selected student can solve the question is 0.5. What is the probability that at least 110 students in the class cannot solve the question? Use normal approximation to binomial (without continuity corrections).

- a. 0.243
- b. 0.921
- c. 0.079
- d. 0.757

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

10)

1 point

Let X be a continuous random variable whose density is given as

$$f(x, \theta) = \left(\theta x + \frac{1}{2} \right) I_{(-1,1)}(x),$$

Find the value of θ so that variance of X is maximized.

- a. 0
- b. 0.2
- c. 0.3
- d. 0.5

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

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