

IfoA IFoA CAA MO Exam

Volume: 64 Questions

Question No : 1

1/5 of actuarial students like skiing.

2/5 of actuarial students like snowboarding.

1/3 of actuarial students like skiing and snowboarding.

Calculate the proportion of actuarial students that like skiing or snowboarding.

- $-\frac{4}{15}$
- $\frac{4}{15}$
- $\frac{3}{5}$
- $\frac{14}{15}$

A. Option A

B. Option B

C. Option C

D. Option D

Answer: B

Question No : 2

Calculate the sum of the following non-terminating progression:

$\frac{2}{10}, \frac{2}{40}, \frac{2}{160}, \frac{2}{640}, \dots$

A. 0.174

B. 0.266

C. 0.267

D. 0.406

Answer: C

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Question No : 3

For random variable X, use the following statistics to calculate its coefficient of skewness based on central moments.

$$E(X) = 3.940$$

$$E(X^2) = 21.466$$

$$\text{skew}(X) = E[(X - \mu)^3] = 6.008$$

A. -0.415

B. 0.060

C. 0.415

D. 0.768

Answer: C

Question No : 4

Identify the condition that fully describes the existence of independence between two events A and B.

A. $P(A|B) = P(A)/P(B)$ and $P(B|A) = P(B)/P(A)$

B. $P(A|B) = P(A) - P(B)$ and $P(B|A) = P(B) - P(A)$

C. $P(A|B) = P(A)$ and $P(B|A) = P(B)$

D. $P(A|B) = P(A) + P(B)$ and $P(B|A) = P(B) + P(A)$

Answer: C

Question No : 5

Determine which of the options is equal to $\log(3) - 2\log(x+1)$.

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- $\log(2x + 1)$
- $\log\left(\frac{3}{2x + 1}\right)$
- $\log\left(3(x + 1)^2\right)$
- $\log\left(\frac{3}{(x + 1)^2}\right)$

- A. Option A
- B. Option B
- C. Option C
- D. Option D

Answer: D

Question No : 6

The table below shows the distribution of the number of people in each household in a village.

Number of People per Household	Frequency
0	1
1	6
2	5
3	4
4	4

Determine which of the following inequalities is true for the number of people living in a house.

- A. Mode < Median < Mean
- B. Mode < Mean < Median
- C. Median < Mean < Mode
- D. Median < Mode < Mean

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Answer: A

Question No : 7

Calculate the second order derivative of y with respect to x, where:

$$y = 3x^2 + ex$$

- A. $6 + ex$
- B. $6x + ex$
- C. $6x + ex-1$
- D. $6 + (x - 1)ex-2$

Answer: A

Question No : 8

If

$$f(x, y) = \frac{y^3 - 3x}{x^2}$$

Calculate the partial derivative

- $\frac{2y^3 - 3x}{x^3}$
- $\frac{-9y^2 + 9}{x^3}$
- $\frac{-2y^3 + 3x}{x^3}$
- $\frac{-2y^3 + 6}{x^3}$

A. Option A

B. Option B

C. Option C

D. Option D

Answer: C

Question No : 9

A coin is tossed 7 times.

Calculate the number of possible combinations that gives 4 heads and 3 tails.

A. 35

B. 42

C. 210

D. 840

Answer: A

Question No : 10

The random variable X has the following probability density function ("PDF"):

$$f_x(x) = \frac{1}{16}(5 + 3x) \text{ for } 0 \leq x \leq 2$$

Calculate: $P(x < 1.5)$

A. 0.164

B. 0.250

C. 0.320

D. 0.484

Answer: C

Question No : 11

A function $f(x)$ is known for two values: $f(2) = 8$ and $f(5) = 14$.

Using linear interpolation, estimate $f(3)$.