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CA-2: MTH302

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CA-2: MTH302

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Email address *

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Name

Pankaj Pandey

Roll Number

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Registration Number

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Section

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....

Question Paper

There is negative Marking of 25%

1 MARKS QUESTION

The expectation of a continuous random variable is defined by

(a) $\sum_x^{\square} f(x)$ (b) $\int_{-\infty}^{\infty} f(x)dx$ (c) $\int_{-\infty}^{\infty} xf(x)dx$ (d) $\sum_x^{\square} xf(x)$

○ A

○ B

◉ C

○ D

1 MARKS QUESTION

If the expectation $E(|X|)$ exist then the expectation $E(X)$

(a)   Exist always

(b)   Exist only for some values of random variable

(c)   Never exist

(d)   No such expectation can be defined

- ⦿ A
- ○ B
- ○ C
- ○ D

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1 MARKS QUESTION

The expectation $E(1)$ is equal to

| (a) 0 | (b) 1 | (c) -1 | (d) ∞ |

- ○ A
- ⦿ B
- ○ C
- ○ D

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1 MARKS QUESTION

The expectation $E(XY) = E(X)E(Y)$ is

(a) valid for all X, Y

(b) only if X and Y are dependent

(c) only if X and Y are independent

(d) None of the above

- ○ A
- ○ B
- ⦿ C
- ○ D

1 MARKS QUESTION

Select the correct statement

(i) $E\left(\frac{1}{x}\right) = \frac{1}{E(X)}$

(ii) $E\left(\frac{1}{x}\right) = E(X)$

(a) Statements (i) and (ii) are correct

(b) Statements (i) and (ii) both are not correct

(c) Only statements (i) is correct

(d) Only statements (ii) is correct

○ A

◉ B

○ C

○ D

1 MARKS QUESTION

Select the correct option for expectation E

(a) $E(\sqrt{X}) = \sqrt{E(X)}$ (b) $E(X^2) = E(X)^2$

(c) Both optons are correct   (d) Both optons are not correct

○ A

○ B

○ C

◉ D

1 MARKS QUESTION

If $f(x)$ denotes the pdf then

(a) $\int_{-\infty}^{\infty} f(x)dx = 0$ (b) $\int_{-\infty}^{\infty} f(x)dx = 1$ (c) $\sum_{-\infty}^{\infty} x\, f(x) = 0$ (d) $\sum_{-\infty}^{\infty} x\, f(x) = 1$

○ A

⦿ B

○ C

○ D

1 MARKS QUESTION

Consider the statements for expectation

(e) $|E(X)| \leq E(|X|)$ (ii) $E(|X|) \geq |E(X)|$

(a) Only statement (i) is correct

(b) Only statement (ii) is correct

(c) Both statement (i) and (ii) are correct

(d) Both statements (i) and (ii) are not correct

○ A

○ B

⦿ C

○ D

1 MARKS QUESTION

Consider the statements for binomial distribution:

(i) $Mean = 1, Variance = 0$

(ii) $E(X) = 1, Variance = 0$

(iii) $\mu_1' = 1, Variance = 0$

(e) Statement (i) and (ii) are correct but not (iii)

(f) Statement (ii) and (iii) are correct but not (i)

(g) Statement (i) and (iii) are correct but not (ii)

(h) All the statements (i), (ii) and (iii) are correct

○ A

○ B

○ C

◉ D

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1 MARKS QUESTION

Select the best possible option

(i)   First order moment at origin are equal to First order expectation
(ii)   First order moment at origin are equal to mean

(a) Only statement (i) is correct
(b) Only statement (ii) is correct
(c) Both statements (i) and (ii) are correct
(d) Both statement (i) and (ii) are not correct

○ A

○ B

◉ C

○

D

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2 MARKS QUESTION

If mean and variance are 4 and 3 then mode of binomial distribution is

(a) 4.25   (b) 4   (c) 4 and 4.25 both   (d) none of the above

○ A

⦿ B

○ C

○ D

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2 MARKS QUESTION

If the probability function is defined by $P\left(X = \frac{e^{-1}}{x!}\right), x = 0, 1, 2, ... \infty$ then expectation is

(a) Exist and $E(X) = 1$

(b) Exist and $E(X) = e^{-1}$

(c) Exist and $E(X) = e$

(d) Expectation not exist

⦿ A

○ B

○ C

○ D

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2 MARKS QUESTION

The expectation $E(X + Y) = E(X) + E(Y)$ is

(a) valid for all X, Y

(b) valid if and only if X and Y are independent

(c) only if X and Y are independent

(d) None of the above

◉ A

○ B

○ C

○ D

2 MARKS QUESTION

Select the correct option for the expectation E and constant a

(a) $E(a + 1) = a + 1$

(b) $E(a + 1) = E(a) + 1$

(c) $E(a + 1) = a + E(1)$

(d) All above are correct

○ A

○ B

○ C

◉ D

2 MARKS QUESTION

From the below data the value of Expectation $E(2X + 1)$ is

$X = x$	-3	6	9
$p(x)$	$1/6$	$1/2$	$1/3$

(a) 11   (b) -11 (c) 12   (d) -12

○ A

○ B

◉ C

○ D

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2 MARKS QUESTION

Consider the statements for two random variables such that $X < Y$

(i) $E(X) \leq E(Y)$ (ii) $E(X) < E(Y)$

(a) Only statement (i) is correct

(b) Only statement (ii) is correct

(c) Both statement (i) and (ii) are correct

(d) Both statements (i) and (ii) are not correct

○ A

◉ B

○ C

○ D

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2 MARKS QUESTION

The statements: (i)   Variance $V(\pi) = -\pi$ (ii)   Variance $V(\pi) = \pi$

(a) Only statement (i) is correct

(b) Only statement (ii) is correct

(c) Both statement (i) and (ii) are correct

(d) Both statements (i) and (ii) are not correct

○ A

○ B

○ C

◉ D

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2 MARKS QUESTION

The expectation of number of tosses until appear head is

(a) 1   (b) 2   (c)   1/2   (d) ∞

○ A

◉ B

○ C

○ D

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2 MARKS QUESTION

The first order moment about origin for $f(x) = \begin{cases} \frac{1}{x(x+1)}, & x = 1, 2, 3 \ldots \ldots \\ 0 & other\ wise \end{cases}$

(a) Exist and equal to zero

(b) Exist and equal to one

(c) Exist and equal to negative one

(d) Not exist

○ A

○ B

○ C

◉ D

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2 MARKS QUESTION

Consider the statements for binomial distribution:

(i) $Mean = np$ $(ii)\ Variance = np$ $(iii)\ E(X) = np$

(a) Statement (i) and (ii) are correct but not (iii)

(b) Statement (ii) and (iii) are correct but not (i)

(c) Statement (i) and (iii) are correct but not (ii)

(d) All the statements (i), (ii) and (iii) are correct

○ A

○ B

◉ C

○ D

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