

(VITEEE Slot 1 - May 28, 2021) memory-based questions

Ques - A point is chosen randomly inside the circle of radius r . Let x be the distance of the point from the center of the circle. Then the equation of the random variable is given by? Question - The length of the axis of the conic $25x^2 + 4y^2 - 10x + 4y + 1 = 0$ are:

- A) $\frac{2}{5}$
- B) $\frac{4}{5}$
- C) $\frac{1}{2}, \frac{2}{5}$
- D) $\frac{1}{2}, \frac{1}{5}$

Ques - When we push a wooden crate on the concrete floor, then which of the following statements is true?

- A) The static friction in this case is more than the kinetic friction
- B) It is easier to push the object on a smooth surface than on a rough surface to get it moving.
- C) If we keep a heavy weight on the wooden crate we can get it moving easily as compared to when there is no block over it.
- D) We need more force to get the crate to move initially compared to keep it moving.

Ques - Let P and Q be matrices of size 4×6 and 4×1 , respectively which of the following is correct for the system of linear equations $Px = Q$?

- A) If the system is consistent then it has infinitely many solutions.
- B) If $Q = 0$ then the system is inconsistent.
- C) If $Q \neq 0$ and the system is consistent, then the rank of P must be 6.
- D) If $Q = 0$, then the system has a unique solution.

Ques - In which one of the following cases the Rolles Theorem is not applicable?

- A) $f(x) = [x]$ in $[2.5, 2.7]$
- B) $f(x) = x^2 - 4x + 5$ in $[1, 2]$
- C) $f(x) = |x|$ in $[-2, 2]$

Ques - If z_1, z_2, z_3 are the vertices of the equilateral triangle and the z_0 be its orthocentre, such that $z_1^2 + z_2^2 + z_3^2 = Kz_0^2$, then K equals

- A) 6
- B) 2
- C) 9
- D) 3

Ques - Which of the following fluorides of oxygen do not exist?

- A) XeF_4
- B) XeF_6
- C) XeF_3
- D) XeF_2

Ques - Let $f(x) = ||x| - 1|$, then the point where $f(x)$ is not differentiable, is / are?

- A) 0
- B) 1
- C) ± 1
- D) $0, \pm 1$

Ques - The metal ion present in hemoglobin is

- A) Zn^{2+}
- B) Fe^{2+}
- C) Mg^{2+}
- D) Mn^{2+}

Ques - Let G be a group such that $(xy)^2 = xy$, $\forall x, y \in G$, then which of the following is true?

- A) $xy = x$, $\forall x, y \in G$
- B) $xy = y$, $\forall x, y \in G$
- C) $x^2 = e$, $\forall x \in G$
- D) $xy = yx$, $\forall x, y \in G$

Ques- Let a, b be elements of the group G . Assume that A has order 5 and $a^3b = ba^3$, then G is:

- A) Both abelian and cyclic group
- B) Non-abelian group
- C) Cyclic group
- D) Abelian group

Ques - The distance of the line $x+3 = y+4 = z+5$ from the origin is:

- A) $\sqrt{12}$
- B) 2
- C) $\sqrt{3}$
- D) $\sqrt{2}$

Ques - Catalytic dehydrogenation of primary alcohol will produce a:

- A) Secondary alcohol
- B) Ester
- C) Aldehyde
- D) Ketone

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