

**(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  $4 \times 6$  and  $4 \times 1$ , 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)  $\pm 1$
- 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