(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 4X6 and 4X1, 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≠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 $z_1^2 + z_2^2 + z_3^2 = K z_0^2$, 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,±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 $(xy)^2 = xy$, $\square x, y \in G$, then which of the following is true?

A) $xy = x$, $\square x, y \in G$
B) $Xy = y$, $\square x, x \in G$
C) $X^2 = e$, $\square x \in G$
D) $xy = yx$, $\square x, y \in G$

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) √12
B) 2
C) √3
D) √2

Ques - Catalytic dehydrogenation of primary alcohol will produce a:
A) Secondary alcohol
B) Ester
C) Aldehyde
D) Ketone