Step-1

Given that the columns of a 5 by 5 matrix A are a basis for $\mathbf{R}^5$.

Hence the columns are linearly independent and span $\mathbf{R}^5$.

Step-2

(a)

Since the columns of A are linearly independent, its determinant is nonzero and hence $Ax = 0$ has only one solution $x = 0$

So the equation $Ax = 0$ has only one solution $x = 0$ because the columns are independent (In fact A is invariable).

Step-3

(b)

If b is in $\mathbf{R}^5$ then $Ax = b$ is solvable because the columns span $\mathbf{R}^5$ and b can be expressed as the linear combination of the columns of A.