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| **Student Name** | **Student ID** |
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| **Question Number** | **I** | **II** | **Total** |
| **Mark** |  |  |  |

**Instructions**

* Use any trusted source of information with proper citation and no plagiarism
* Work on this assignment as groups of three

**Question[I]**

(i) What is MATLAB?

(ii) For $A=\left[\begin{matrix}2&1&7\\3&4&3\\0&5&-1\end{matrix}\right]$ , $C=\left[\begin{array}{c}\begin{matrix}\begin{matrix}1&3\end{matrix}&\begin{matrix}-2&0\end{matrix}\end{matrix}\\\begin{matrix}\begin{matrix}2&6\end{matrix}&\begin{matrix}-5&2\end{matrix}\end{matrix}\\\begin{matrix}\begin{matrix}\begin{matrix}0\\2\end{matrix}&\begin{matrix}0\\6\end{matrix}\end{matrix}&\begin{matrix}\begin{matrix}5\\0\end{matrix}&\begin{matrix}10\\8\end{matrix}\end{matrix}\end{matrix}\end{array}\right]$, $b\_{1}=\left[\begin{matrix}1\\0\\4\end{matrix}\right]$, $b\_{2}=\left[\begin{matrix}\begin{matrix}0\\-1\end{matrix}\\\begin{matrix}3\\5\end{matrix}\end{matrix}\right]$, use MATLAB functions to compute

1. The Reduced Row Echelon Form of the augmented matrices $\left[A\left|b\_{1}\right.\right]$ and $\left[C\left|b\_{2}\right.\right]$.
2. $det⁡(A)$, $A^{-1},$ $A^{2},$ $A^{T}$, $det⁡(C)$.
3. The solutions $x$and $y$ of the linear systems $Ax=b\_{1}$ and $Cy=b\_{2}$

**Question[II]**

Read Section 10.9 or Section 10.14 in *Elementary Linear Algebra* Applications Version book, the 11th Ed. Then, in no more than three A4 pages, answer **ONE** of the following questions:

1. How is Linear Algebra related to Computer Graphics?
2. How is Linear Algebra related to Cryptography?

Good Luck ☺