

Semester 441 / MATH-244 / Quiz-1 version A Solution

Max. Marks: 10

Max. Time: 35 Min.

Question 1 [Marks: 1.5]:

Which of the following matrices is row equivalent to the matrix $\begin{bmatrix} 1 & 1 & 1 \\ x & y & z \\ z+y & x+z & y+x \end{bmatrix}$?

- (a) $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ y+z & x+z & x+y \end{bmatrix}$ (b) $\begin{bmatrix} 1 & 1 & z \\ 1 & 1 & y \\ 1 & 1 & x \end{bmatrix}$ (c) $\begin{bmatrix} 1 & 1 & 1 \\ x & y & z \\ z & y & x \end{bmatrix}$ ~~(d) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$~~

Question 2 [Marks: 2]:

The inverse of the matrix $\begin{bmatrix} 1 & 0 & 2 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$ is:

- (a) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 2 & 0 & -1 \end{bmatrix}$ (b) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & -1 \\ 0 & 0 & 2 \end{bmatrix}$ (c) $\begin{bmatrix} 1 & 0 & 2 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$ (d) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 1 & 0 & 2 \end{bmatrix}$

Question 3 [Marks: 1.5]:

Which of the following conditions is sufficient for invertibility of square matrix M?

- (a) RREF of M is not I (b) M has a unique REF (c) M has a unique RREF (d) RREF of M is I

Question 4 [Marks: 1.5]:

Let A and B be 4×4 matrices such that B is not invertible. Then, $|2A^{-1}A^T + 3B \text{adj}(B)|$ is equal to:

- (a) 4 (b) 16 (c) 8 (d) 2

Question 5 [Marks: 2]:

The determinant of the matrix $\begin{bmatrix} \alpha & \alpha & \gamma & 0 \\ \alpha & \alpha & 0 & \gamma \\ \beta & 0 & \alpha & \alpha \\ 0 & \beta & \alpha & \alpha \end{bmatrix}$ is equal to:

- (a) $\beta\gamma(\beta\gamma-2\alpha^2)$ (b) $\beta\gamma(\beta\gamma-\alpha^2)$ (c) $\beta\gamma(\beta\gamma-3\alpha^2)$ (d) $\beta\gamma(\beta\gamma-4\alpha^2)$.

Question 6 [Marks: 1.5]:

Let A be 3×3 matrix and $E = \begin{bmatrix} -1 & 0 & 0 \\ 0 & 3 & 0 \\ 3 & 0 & -1 \end{bmatrix}$. Then, the determinant |EA| is equal to:

- (a) |A| (b) -9|A| (c) 3|A| (d) 6|A|.

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الرقم الجامعي:

الاسم:

2. استخدم خلف الورقة والورقة

1. يمنع استخدام الآلة الحاسبة
الإضافية كمسودة

ضع رمز الإجابة الصحيحة للأسئلة من 1 إلى 6 في الجدول التالي :

رمز الإجابة	رقم السؤال
A	1
C	2
D	3
B	4
D	5
C	6