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Bonus Quiz

Graded Quiz # 9 (Bonus)

10 points possible (graded, results hidden)

Please write below your BracU ID and Section Number. After submission, these may show WRONG answers. Please IGNORE these messages. Your score will be based on the questions below these two inputs:

= = = = =

Your BracU ID#:

19101239

Your theory class section#

☐ 1

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☐ 5

☑ 6

MCQs start from below. Answer the questions correctly:

=====

Q#1: Which of the following statements is/are correct?

○ The columns of the transformation matrix A needs to be linearly independent.

○ A over-determined system is a linear system where the number of conditions to be satisfied must not be less than the number of variable needed to express the system.

○ The least-square method is applicable for over-determined system.

● All of the above.

Q#2: Consider two vectors $u_1, u_2 \in \mathrm{R}^2$ with $u_1 = (1, 0)$ and $u_2 = (1, 1)$, and a_1 and a_2 are scalars or numbers. Which of the following statements about u_1, u_2 is/are correct?

○ $|u_i| = 1$ for $i = 1, 2$.

○ $u_1^T u_2 = 0.$

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Q#3: In a normal equation/system it is found that $\det\left(A^T A\right) = 1$, where A is the $m \times n$ transformation matrix that represent a linear system $Ax = b$. This implies that

◯ $A^T = A$.

◯ $\det\left(A\right) = \pm 1$.

◯ $\det\left(A\right) = \det\left(A^T\right)$.

🔘 None of the above.

Q#4: An overdetermined linear system three variables that need to satisfy four equations. The solution of the system by least-square method is a

🔘 degrre two polynomial.

◯ degrre one polynomial.

◯ There is no solutions.

◯ degrre four polynomial.

Q#5: Consider a set of three orthonormal vectors

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○ an orthogonal set of vectors.

● a linearly dependent set of vectors.

○ a linearly independent set of vectors.

○ an orthonormal set of vectors.

Q#6: Which of the following statement(s) about the QR-decomposition method is(are) true?

○ The matrix R must be an square matrix.

○ The matrices A and Q must be of same orders.

○ The matrix Q must be a set of orthonormal vectors.

● All of the above.

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○🔘 be infinitely many solutions.

○ still exist a solution of degree-$(n-1)$ polynomial.

○ exist a solution of degree-$(m-1)$ polynomial.

○ It cannot be determined.

Q#8: Which of the following set of vectors form(s) an orthonormal set?

○ $\left\{ \frac{1}{\sqrt{3}}(1,1,1), \frac{1}{\sqrt{6}}(1,-2,1) \right\}$.

○ $\left\{ \frac{1}{\sqrt{2}}(1,1), \frac{1}{\sqrt{2}}(1,-1) \right\}$.

○ $\{(1,0),(0,1)\}$.

○🔘 All of the above.

Submit	You have used 1 of 1 attempt

ℹ Answer submitted.

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Question- 10: [1 Mark] Find the equation of the straight line that fits the data using the normal matrix found in the previous question (that is find the coefficients a_0 and a_1, and then write the expression for $p_1\left(x\right)$).

GRADED QUIZ # 9 SUBMISSION

Assignment submissions will close soon. To receive a grade, first provide a response to the prompt, then complete the steps below the **Your Response** field.

▼ | **Your Response** due Sep 16, 2021 21:00 +06 (in 42 minutes) IN PROGRESS

Enter your response to the prompt. You can save your progress and return to complete your response at any time before the due date (Thursday, Sep 16, 2021 21:00 +06). **After you submit your response, you cannot edit it**.

The prompt for this section

> **Read the following instructions to submit your solution of the Problem Part (Question # 9) of Graded Quiz #6:**
>
> - Prepare a title page indicating (i) your name, (ii) BracU ID #, Grade Quiz # and (iv) your theory section #.
>
> - Rename your solution file in the format: ID_LastName_Section.pdf or ID_LastName_Section.jpg (As for example 12345678_Khan_4.pdf).
>
> - Prepare a single .pdf ot a single.jpg file containing the title page and the solution pages, arranged on order.and when finished upload your work/solution below, and write the file name in the Description tab and then click the Upload File button.
>
> - Finally click `Submit your Response and Move to the next step' to complete the submission.
>
> - Click `End My Exam' at the top.

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| Choose Files | No file chosen | | Upload files |

19101239_Khan_06 (19101239_Khan_06.pdf) | **Delete File** |

You may continue to work on your response until you submit it.

| Submit your response and move to the next step |

| Staff Grade   NOT AVAILABLE |

‣ Your Grade: Not Started

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