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| **Question Number** | **I** | **II** | **III** | **Total** |
| **Mark** |  |  |  |  |

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| **Answer** |  |  |  |  |  | |  |

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| **Question I:**  **Choose the correct answer, then fill in the table above:**    **(1) If and are matrices, and then**  **(a) -1 (b) 1 (c) 2 (d) None of the previous**  **(2) Let be a subset of then is**  **(a) Linearly independent but does not span (b) Spans but is not linearly independent**  **(c) a basis for (d) None of the previous** |
| **(3) Let then =**  **(a) (b) (c) (d) None of the previous**    **(4) The vector is a linear combination of and if**  **(a) -1 (b) -3 (c) 2 (d) None of the previous**  **(5) If is a matrix and then is**  **(a) (b) (c) 1 (d) None of the previous**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Question II:**  **A. Prove that if is a nonempty set of vectors in a vector space and if is linearly independent and is in is outside then is linearly independent.** |
| **B. Let Then answer the following**  **(i) Prove that is a subspace of .**  **(ii) Find a basis for .**  **(iii) Find the dimension of .**     1. **If is a basis for and Then find**   **Question III:**  **Let , then answer the following**   1. **Find a basis for the solution space** 2. **Find a basis for the row space of** 3. **Find a basis for the column space of .**   **Good Luck☺** |