

2021**STATISTICS — HONOURS — PRACTICAL****Paper : CC-5P****Full Marks : 30***The figures in the margin indicate full marks.*

1. (a) Check whether the following set of vectors is linear dependent or not. If yes, then express one of the vectors as a linear combination of others. 5
 $(1, 0, 0, 1)', (1, 1, 1, 0)', (0, 1, 1, 1)', (1, 1, 1, 1)'$.

2. Determine which of the following polynomials are in span of S ,
where $S = \{x^3, x^2 + 2x, x^2 + 2, 1 - x\}$. 8

3. Consider the following matrix:

$$\begin{bmatrix} 1 & 1 & 0 & 1 \\ 2 & 3 & 5 & -1 \\ 8 & 13 & 21 & -3 \\ 13 & 8 & 5 & -2 \end{bmatrix}$$

- Find (i) Rank of the matrix.
(ii) An orthogonal basis of the row space of A .
(iii) A basis of the orthocomplement space of the row space of A . 5+6+6
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