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| **Department of Electrical Engineering**  **Assignment**  **Date: 14/04/2020**  **Course Details** | | | |
| **Course Title:** | Signals and Systems | **Module:** | 6th |
| **Instructor:** |  | **Total Marks:** | 30 |
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**Student Details**

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| **Name:** |  | **Student ID:** |  |

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| Q1. | (a) | Find the total solution of the following Linear Constant difference equation by   1. Homogeneous and Particular solution method 2. Zero input and Zero State solution method.   After finding total solution plot the responses by putting at least four different values and comment on both methods.  Y[n] + 0.567 Y[n-1] + 33.3Y[n-2] + Y[n-4] = x[n]  For unit step x[n] = 10u[n]  with y[-1] = 1, y[-2] = -1 | Marks 10 |
| CLO 1 |
| Q2. | (a) | Find the sampling frequency of | Marks 05 |
| CLO 1 |
| (b) | Sketch the block diagram representation of discrete-time systems described by the following input-output relation. Also find order of the system, total number of Adders and Scalars.   1. y[n] – 4 y[n-2] = 3 x[n] + 2 x[n-1] + 4x[n-4] 2. y[n] – 10.3 y[n-8] = x[n] + 3 x[n-1] | Marks 05 |
| CLO 1 |
| Q3. | (a) | Consider the following two sequences x[n] and y[n]:  x[n] = [1, 3, 6, -4,, -2, 1, 3, 0, 0, 3]  y[n] = [2, 4, -2, , 2, 0, 0, -2, 5]  Sketch and label the following sequences. Also specify either they are RSS, LSS or TSS. | Marks 05 |
| CLO 2 |
| (b) | Consider the signal x(t) = (-1, -1, -2, -2, -2, -1)  Plot   1. x(t-2) 2. x(-t) 3. 25x(-t) 4. X(t+5) 5. X(1/t) | Marks 05 |
| CLO 2 |

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