

Roll Number.....

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Odd Semester Examination-2024 (Backlog)  
Programme Name: B.Tech (CSE)

**Paper Name: Signals and Systems**  
**Time: 3 Hours**

**Paper Code: BTCSE 501**  
**Max. Marks: 75**

| Section A                              |                                                                                                                |       |     |    |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------|-------|-----|----|
| Attempt all questions (7x5 = 35 Marks) |                                                                                                                |       |     |    |
| Q.No                                   | Questions                                                                                                      | Marks | CO  | BL |
| 1.                                     | How is signals and systems being utilized in Everyday life and in various branches of engineering and science. | 7     | CO1 | L2 |
| 2.                                     | Describe the characteristics of discrete time signals.                                                         | 7     | CO2 | L2 |
| 3.                                     | Discuss the various types of shift invariant systems.                                                          | 7     | CO3 | L3 |
| 4.                                     | Differentiate between periodic and semi - periodic inputs to an LSI system.                                    | 7     | CO5 | L5 |
| 5.                                     | Discuss in detail Z- domain analysis.                                                                          | 7     | CO3 | L3 |
| 6.                                     | What do you mean by state transition matrix? Explain its role.                                                 | 7     | CO4 | L5 |
| 7.                                     | Write short notes on DFT.                                                                                      | 7     | CO2 | L2 |

| Section B                                                 |                                                                                                       |       |     |    |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------|-----|----|
| Attempt any four out of six questions ( 4X10 = 40 Marks ) |                                                                                                       |       |     |    |
| Q.No                                                      | Questions                                                                                             | Marks | CO  | BL |
| 1.                                                        | Discuss the importance of energy and power signals and also describe the continuous time signals.     | 10    | CO3 | L3 |
| 2.                                                        | Describe the characterization of causality and stability of linear shift – invariant system.          | 10    | CO2 | L2 |
| 3.                                                        | What do you mean by fourier series? Explain discrete time fourier transform.                          | 10    | CO1 | L2 |
| 4.                                                        | Discuss in detail notion of Eigen functions of LSI system.                                            | 10    | CO5 | L3 |
| 5.                                                        | What do you mean by input and output? Explain input output behavior with aperiodic convergent inputs. | 10    | CO3 | L5 |
| 6.                                                        | Discuss the idea of signal space and orthogonal bases in parseval's theorem.                          | 10    | CO5 | L5 |