Roll No. | | | | | | | | | | | | | **Total No. of Pages: 01**

Total No. of Questions: 08

M.Tech. (ECE) (Sem. – 2)

ADVANCED DIGITAL SIGNAL PROCESSING

Subject Code: MTEC-104-18

M Code: 76260

Date of Examination: 15-12-2022

Time: 3 Hrs. **Max. Marks: 60**

INSTRUCTIONS TO CANDIDATES:

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWELVE marks.**

1. List the techniques used to design IIR filters. Explain any one technique by considering a suitable example.

2. a) How wiener filters can be used for filtering and prediction?

   b) How multi-rate DSP can be employed in sub band coding?

3. a) Differentiate between decimators and interpolators by considering a suitable example.

   b) Discuss Gradient Adaptive Lattice in adaptive filtering.

4. Describe about the forward prediction and backward prediction and obtain a relation between forward coefficients and backward prediction coefficients.

5. a) Describe Eigen analysis algorithms for spectrum estimation.

   b) List some applications of Adaptive filters.

6. Write a brief note on lattice structures. Also, explain the advantages of lattice structures in detail.

7. a) Compare Non-parametric method with parametric method for spectrum estimation.

   b) Discuss in detail about minimum-variance spectral estimation.

8. a) Discuss the applications of DSP to image processing.

   b) Explain the Poly phase filter structures for the implementation of sampling rate conversion.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.