

Q.P. Code: 16EC3804

R16

Reg. No:

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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

M.Tech I Year I Semester (R16) Regular Examinations January 2017

ADAPTIVE SIGNAL PROCESSING

(DECS)

(For Students admitted in 2016 only)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 X 12 = 60 Marks)

UNIT-I

- Q.1** a. Write about the classification of the adaptive systems. 6M
b. Define adaptive system. Write its characteristics. 6M

OR

- Q.2** a. With the help of a diagram explain about adaptive linear combiner. 6M
b. Write a short note on Gradient and MSE. 6M

UNIT-II

- Q.3** a. Explain the principle of Wiener filter and discuss clearly the estimation procedure in Wiener filters. 6M
b. Explain the concept of Gradient Search method. 6M

OR

- Q.4** a. Explain linear optimum filtering problem. 6M
b. Derive the expression for Minimum Mean Square Error. 6M

UNIT-III

- Q.5** a. Explain the method of Steepest descent algorithm. 8M
b. Discuss the similarities and differences between the method of steepest descent and a stochastic gradient approach. 4M

OR

- Q.6** a. Derive the condition for stability of an LMS algorithm. 6M
b. Write about the Adaptive Beam forming. 6M

UNIT-IV

- Q.7** a. Explain the RLS algorithm with the help of block diagram. 8M
b. What is matrix inversion lemma and explain it? 4M

OR

- Q.8** a. Explain how RLS algorithm is used in adaptive equalization. 6M
b. Explain the convergence analysis of RLS algorithm. 6M

UNIT-V

- Q.9** a. Define Innovation. List out its properties. 8M
b. List out different applications of Kalman filter. 4M

OR

- Q.10** a. Discuss about the recursive mean square estimation for random variables. 6M
b. Write about the Extend Kalman filtering. 6M

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