Q.P. Code: **16EC404** **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
BTECH II Year I Semester (R16) Regular Examinations Nov/Dec 2017
RANDOM SIGNAL &STOCHASTICS PROCESSES
(Electronics and Communication Engineering)

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

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

UNIT-I

1	a	Explain about Joint and Conditional probability and also state the properties of Joint & Conditional probability?	6M
	b	There are 35 students in a science class and 57 students in mathematics class.Find the number of students who are either in science class or in mathematics class. i. When two classes meet at different hours and 12 students are enrolled in both activities. ii. When two classes meet at the same hour.	6M

OR

2	a	Define Random variable? Explain about probability distribution function with properties?	6M
	b	In a group of 100 students,72 students can speak English and 43 can speak French. How many can speak English only ? How many can speak French only and how many can speak both English and French?	6M

UNIT-II

3	a	Discuss about the sum of two random variables?	6M
	b	Write about Binomial random variable	6M

OR

4	a	Define (i) Autocorrelation (ii)Covariance (iii) correlation coefficient?	6M
	b	Suppose there is an error probability of 0.01 per word in typing.What is the probability that there will be more than 1 error in a page of 120 words?	6M

UNIT-III

5	a	Explain about first order, wide-sence and strict sence stationary process.	6M
	b	What is ACF? State and explain any four properties of ACF?	6M

OR

6	a	State and explain any four properties of cross correlation function of a random process?	6M
	b	Give the classification of random processes.	6M

UNIT-IV

7		State and prove properties of PDS	12M

OR

8		Discuss the relation between cross power spectrum and cross correlation function	12M

UNIT-V

9	a	Write notes on: a.Band Pass random process. b. Band limited random process c. Narrow band random process	6M
	b	Derive the relation between PSD of input and output random process of an LTI system.	6M

OR

10	a	Write different types of band pass processes with band limited processes.	6M
	b	Find the power density spectrum of response of a linear system.	6M

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