Seat No.: Enrolment No.
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## GUJARAT TECHNOLOGICAL UNIVERSITY M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014

Subject code: 2714105 Date: 06-01-2015

**Subject Name: Probability and Random Process** 

Time: 02:30 pm - 05:00 pm Total Marks: 70

## **Instructions:**

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.

probability of receiving an input signal at the output.

- 3. Figures to the right indicate full marks.
- (a) Define Probability and describe how set theory is applicable to probability. **Q.1** 07 **(b)** Describe the properties of probability. 07 A box contains 6 white and 4 black balls. Remove the two balls at random 07 0.2 without replacement. What is the probability that the first one is white and second one is black? (b) Explain Bayes theorem. **07** OR (b) Three switches as shown in Fig-(1) connected in parallel and operate 07 independently. Each switch remains closed with probability P. Find the

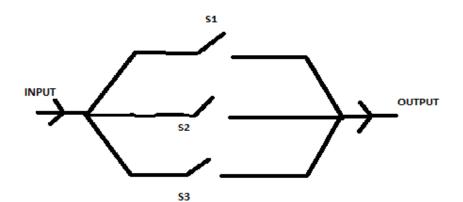


Fig-(1)

Q.3Define conditional probability and also describe the properties of conditional 07 probability. **(b)** Define and describe the random variable. 07 OR (a) A fair coin is tossed twice and let the random variable x represent the number Q.3 **07** of heads. Find Fx(x). **(b)** Explain discrete and continuous type random variables. 07 0.4 (a) Describe the properties of probability distribution function. 07 **(b)** Describe in detail: Markov Process **07** OR 07 **Q.4** (a) Describe in details : Gaussian Process **(b)** Explain the meaning of stochastic process along with its properties. 07

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