USN	Г	0880	CN153
	_	First Semester M.Tech. Degree Examination, June-July 2009	
System Modeling and Simulation			
Tim	0.3	hrs. Max. Mark	s:100
Note: 1. Answer any FIVE full questions.			
2. Use of statistical tables is permitted.			
1	a.		( Mains)
	b.	ii) Discrete and continuous system iii) Deterministic and stochastic models	marks)
2	a.	Six trucks are used to haul coal from a mine to the rail road. There are two loaders weighing scale. After loading, a trunk immediately moves to the scale for weigh servicing is as per FIFS. After weighing a truck, begins a travel time and then afterward to the loader queue with the distribution of travel time as:    Travel time in minutes (mts)   40   60   80   100	mig und
		Further, the distribution of loading time and weighing times are as given below:  Loading time in minutes 5 10 15  Probability 0.3 0.5 0.2	
		Weighing time in minutes 12 16	
		Probability 0.7 0.3	0 Marks)
	1	Cimpulate the cretem to estimate the loader and scale unitation.	0 Marks)
3	b.	A college professor is leaving home for the summer, but would like to here a light but times to discourage burglars. The professor rigs up a device that holds two light but device switches the current to the second bulb if the first bulb fails. The box in which bulbs are packaged says, "Average life 1000 hours, exponentially distributed". The professor 90 days (2160 hours). What is the probability that a light will be burning when the is over and the professor returns?  Suppose that arrivals to a post office occur at a rate of 2 per minute from 8 am until 12 drop to 1 every 2 minutes until the day ends at 4 pm. What is the probability distribution number of arrivals between 11 am and 2 pm?	the light essor has summer 0 Marks) pm, the
4	a. b.	Write discrete event model for single chainful queue.  Prepare simulation table using event scheduling algorithm for the arrival of 8 custome inter-arrival and service times given below:    Inter arrival times	ers using 0 Marks)
5	a.		
	b	Explain how and what for the inverse transform technique is used to sample from well distributions.	0 Marks) 4 Marks)
6	a b	Describe how the method of histograms can be used to identify the shape of a distribution of the shape of the sh	on. 06 Marks)
	c	Explain the chi-square goodness of fit test to accept or reject a candidate distribution. (1	U Marks)
7	a	west the state of	(0 Marks)

8 a. Describe the three-step approach for validation process as formulated by Nayler and Finger.

(10 Marks)

b. Write short notes on the following: i) Model building ii) Optimization via simulation (10 Marks)

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