

**Subject Code: H0401/R13**

**M. Tech –II Semester Regular Examinations, September, 2014**

**SIMULATION MODELING OF MANUFACTURING SYSTEMS**

**(Common to CAD/CAM and AMS)**

**Time: 3 Hours**

**Max Marks: 60**

**Answer any FIVE questions  
All questions carry EQUAL marks**

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1. (a) Define system. Explain its properties with appropriate block diagrams.  
(b) Write short notes in Type I & II errors.
2. (a) State and explain the various techniques for increasing the model credibility.  
(b). Describe about modeling and various techniques for verification.
3. (a). Define random number. Explain statistical properties of random numbers with example.  
(b) Explain the inverse transform method to generate random variates from a given distribution.
4. (a) Explain the different techniques of simulation output analysis.  
(b) How the simulation of output data analysis be done in practice?
5. (a). How the simple fixed period inventory system is simulated?  
(b). What is queuing model? How it is useful for Simulation? Example the simulation of single queuing system.
6. (a) Explain briefly about string law of large numbers.  
(b). Explain the steps involved in Simulation of WMJI queue
7. A toll gate in a highway consists of 5 lanes. The inter-arrival time of the vehicles at the toll gate follow uniform distribution with  $120 \pm 20$  seconds. The service time also follows uniform distribution with  $30 \pm 10$  seconds. Draw a GPSS diagram and prepare a program to simulate the system for 5 hrs.
8. Write short notes on following:
  - a) Advantages of simulation languages
  - b) Properties of parameter estimation
  - c) Welch algorithm

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**Subject Code: H3801/R13**

**M. Tech –II Semester Regular Examinations, September, 2014**

**CODING THEORY&APPLICATIONS**

**(Common to DECS, E&CE, DECE and CS)**

**Time: 3 Hours**

**Max Marks: 60**

**Answer any FIVE questions  
All questions carry EQUAL marks**

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1. a) A discrete source emits one of five symbols once in every milli seconds with probabilities  $1/2, 1/4, 1/8, 1/16$  and  $1/16$  respectively. Find the source entropy and information rate.  
b) Show that if there are 'M' number of equally likely messages, then entropy of the source is  $\log_2 M$ .

2. a) Explain error detection and error correction capabilities of linear block codes.  
b) Construct the standard array for a (6,3) linear block code whose generate matrix is

$$G = \begin{bmatrix} 1 & 0 & 0 & 1 & 1 & 0 \\ 0 & 1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & 1 & 0 & 1 \end{bmatrix}$$

3. a) Discuss in brief about the Hamming codes.  
b) What are the advantages and disadvantages of convolution codes over block codes.
4. Describe the following decoding algorithms for convolution codes  
a) Viterbi decoding algorithm.  
b) Sequential decoding algorithm.

5. a) Generate all the code words for the Hamming code described by the generator matrix.

$$G = \begin{bmatrix} 1 & 0 & 0 & 0 & 1 & 1 & 1 \\ 0 & 1 & 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 & 0 & 1 & 1 \end{bmatrix}$$

Find the parity check matrix

- b) Verify that cyclic shifts of the Hamming code word 1110100 are also Hamming code words.
6. a) What is an interleaved code? Explain about its capability. Correcting errors with suitable example.  
b) Discuss about the bounds on burst error and the correcting capability.
7. a) Discuss the properties and characteristics for BCH codes.  
b) Write short notes on the error location polynomials for single and double error correction.
8. Write short notes on  
a) Transmission efficiency of ARQ system  
b) Error trapping decoding for cyclic codes.

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**Subject Code: H4001 /R13**

**M. Tech –II Semester Regular Examinations, September, 2014**

**ADVANCED UNIX PROGRAMMING**

**(Common to IT, CS& T and CS&E)**

**Time: 3 Hours**

**Max Marks: 60**

**Answer any FIVE questions**

**All questions carry EQUAL marks**

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1. a) Discuss about OSI Model.  
b) Explain about standard internet services.
2. a) Write a client server program for Echo using TCP.  
b) Discuss about the crashing and Rebooting of sever host.
3. Discuss about the following system calls with syntax's
  - a) bind
  - b) connect
  - c) listen
  - d) socket
4. a) What is flow control? Discuss about the lack of flow control with UDP.  
e) What is lost Datagram? Discuss.
5. a) Explain about IPV6 socket options  
b) Explain about the following functions
  - i) select
  - ii) poll
6. a) Explain about the resolver option.  
b) Discuss about gethost by Name function with examples.
7. a) Differentiate between file and record locking.  
b) Write a client server program for echo message using message Queues.
8. Explain about the following terms
  - a) RPC Transparency Issues
  - b) Pseudo Terminals
  - c) exec function

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