Code No: NR311903 **NR**

III B.Tech I Semester Supplementary Examinations, November 2005
OPERATING SYSTEMS AND SYSTEMS PROGRAMMING
(Electronics & Computer Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What are the tasks performed by the analysis and synthesis phases of an assembler?
   (b) Describe the various data structures used in assembler design. [8+8]

2. (a) Give a detailed summary of tasks involved in the design of a macro processor.
   (b) Write a macro that moves 8 numbers from the first 8 positions of an array specified as the first operand into first 8 positions of an array specified as the second operand. [8+8]

3. (a) What is a Process? What are the attributes of a Process? What actions are to be performed by an OS to create a new Process?
   (b) What is a real time OS? What are the facilities provided by real time OS? What are the functions performed by an real time application program being developed for a microprocessor based controller for an automobile? [8+8]

4. (a) Give the similarities and differences between LCN and UNIX scheduling policies.
   (b) List the action of process scheduling mechanisms.
   (c) Describe Bankers algorithm for avoidance of deadlocks. [5+3+8]

5. (a) What are the features of a Conditional Critical Region (CCR)? Give a sample concurrent program using CCR construct.
   (b) Give the solution for bounded buffers problem using semaphores. [8+8]

6. (a) What are actions to be executed by the OS kernel for send and receive calls in a blocking protocol.
   (b) List the actions performed by the page-in and page-out mechanisms of the virtual memory handler. [8+8]

7. (a) Describe the mechanisms and policies implemented by I/O modules.
   (b) What are the functions provided by logical IOCS layer? Give a simple program segment for processing an existing file using logical IOCS facilities. [8+8]

8. (a) Discuss the influence of noncontiguous allocation of disk space on the feasibility and efficiency of the fundamental file organizations.

(b) Describe protection mechanism used for protecting files containing programs and data. [8+8]

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