

Code: 9A04602

R09

III B. Tech I Semester (R09) Supplementary Examinations, May 2012  
**MICROPROCESSORS & MICROCONTROLLERS**  
(Common to CSS, IT & ECC)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Explain about memory segmentation in 8086 microprocessor.  
(b) Explain the architecture of 8086 microprocessor with a neat sketch.
- 2 Write an ALP in 8086 to add five 16-bit numbers and result is 24 bit.
- 3 (a) Explain the static RAM and EPROM interfacing to 8086 micro processor.  
(b) Explain the concept of Direct Memory Access (DMA).
- 4 (a) Explain the keyboard and display interface method.  
(b) Explain A/D Converter interface to 8086 micro processor.
- 5 Distinguish between asynchronous and synchronous data transfer schemes.
- 6 In an 8086 based system it is necessary to serve 64 IRQs from different initiators. The allocated address space for 8259s is from 0700h to 070 FH. Give the complete design by choosing the appropriate address locations in the above range. Give the initialization sequence for all 8259's with each IRQ activated in level triggered mode and the starting interrupt is type 40 H.
- 7 Give a brief description about architecture of 8051 microcontroller.
- 8 Explain the performance parameters involved in usage of ARM microcontrollers when compared to previous microcontrollers. And also list important features of ARM.

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Code: 9A05502

R09

III B. Tech I Semester (R09) Supplementary Examinations, May 2012

**SOFTWARE ENGINEERING**  
(Common to CSS, IT & CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks  
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- 1        What is software? Explain about the evolving role of software.
- 2        What are the drawbacks of RAD model & compare with the water fall model?
- 3        Describe about requirement engineering process with the help of spiral model.
- 4        What is the purpose of design process & design quality & what are the characteristics of good design?
- 5        Explain structure chart of a traditional system.
- 6        Discuss about strategic approach for software testing.
- 7        (a) Explain about project metrics.  
          (b) Explain about reconciling LOC and FP metrics.
- 8        (a) What is quality?  
          (b) Explain 3 important points of quality.

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**OPERATING SYSTEMS**  
(Common to IT, ECC & CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 Discuss the different classes of computer systems whose functions are most limited and whose objective is to deal with limited computation domains.
- 2 Consider the following set of processes, with the length of the CPU burst given in milliseconds:

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, and P5 all at time 0.

- (a) Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, non preemptive priority (a smaller priority number implies a high priority) and RR (Quantum = 1).
  - (b) What are the turnaround and waiting processes for each process for each of the scheduling algorithms in part a?
- 3
  - (a) Explain the usage of a monitor.
  - (b) What are the requirements for solving critical-section problem?
- 4
  - (a) What is 50 percent rule of fragmentation?
  - (b) Compare and contrast paging and segmentation.
- 5 Describe Banker's algorithm to avoid a deadlock. What are the problems in its implementation?
- 6 What are the different types of directory structures?
- 7 Explain in detail various I/O transfer techniques.
- 8 Explain the capability based protection system HYDRA.

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Code: 9A05506

R09

III B. Tech I Semester (R09) Supplementary Examinations, May 2012

**COMPUTER NETWORKS**

(Common to IT & CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) List advantages and disadvantages of having International standards for network protocols.  
(b) Briefly explain the various types of the wireless transmissions.
- 2 Explain PPP with frame format. Explain how it provides the facility through link control protocol and network protocol.
- 3 (a) Explain how dynamic channel allocation in LANs and MANs are done.  
(b) Compare and contrast pure ALOHA and slotted ALOHA.
- 4 (a) What are the responsibilities of network layer? Explain them.  
(b) Write short notes on: Hierarchical routing.
- 5 What is internetworking? What are the different devices used to interconnect dissimilar networks at different layers? Explain them in detail.
- 6 Explain with suitable example, the establishment of the connection and the release of the connection using the transport protocols.
- 7 Give brief description about the electronic mail system.
- 8 (a) With the help of a neat sketch explain the encryption model.  
(b) Give brief description about the substitution ciphers.

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**AUTOMATA & COMPILER DESIGN**

(Common to Computer Science &amp; Systems Engineering &amp; Information Technology)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Prove that for every NFA, there exists an equivalent DFA.  
(b) Design an NFA for the recognizing the language generated by  $(a + b)^*ab$ . Convert it into DFA.
- 2 Eliminate left recursion from the following grammar and then construct predictive parse table for the resultant grammar.  

$$E \rightarrow E+T / T \quad T \rightarrow T^*F / F \quad F \rightarrow (E) / id$$
 Is the grammar LL (1). Show the moves of the parser for  $a+a^*a$ .
- 3 (a) Explain the general method of bottom up parsing with an example.  
(b) Write in detail about the YACC parser generator.
- 4 (a) What is the use of a dependency graph for annotated parse trees? Explain with an example.  
(b) Write three address codes for the following C-program statements.  
`if (a<b) { if (b<c) x = 1} else x = 10;`
- 5 Explain unrestricted grammar and give the recognizer for the unrestricted grammar.
- 6 Consider the following Pascal code and draw the activation record.
 

```

Program param(input , output);
  Procedure b(function h(n: integer): integer);
    Var m : integer
    Begin m := 3;
    write in(h(2))
    End { b };
  Procedure c:
    Var m : integer;
    Function f(n: integer) : integer ;
      Begin f := m + n
      End { f }
  Procedure r;
    Var m : integer;
    Begin m := 7;
    B(f)
    End { r }
  Begin m := 0; r end { c };
Begin
  C
End.
```
- 7 Write about the following algorithms:  
(a) Detection of loop invariant computation. (b) Code motion.
- 8 Explain issues in the design of a code generator.

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Code: 9A12502

**R9**

B.Tech III Year I Semester (R09) Supplementary Examinations, May 2012

**WEB PROGRAMMING**

**(Information Technology)**

Time: 3 hours

Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

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- 1 Create a simple HTML page which demonstrates the use of the three types of list. Try adding a definition list which uses unordered list to define terms.
- 2 (a) Describe the primitive data types that java script uses.  
(b) Write a script that reads a string and checks whether it is a palindrome or not.
- 3 (a) What is SAX parser? What is produces?  
(b) Compare SAX parser with DOM parser.  
(c) Explain why XML uses both streaming and tree-based parsing.
- 4 Give a note on java bean API? List out the set of classes and interfaces in java beans package. Explain briefly each of them.
- 5 Write characteristics of scripting languages and its uses.
- 6 (a) Explain the concept of interfacing to the operating system.  
(b) Write about issue involved in creating internet ware applications.
- 7 Discuss about TCL structure, syntax and variables.
- 8 Explain in detail applications of phyton.

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