

Code: 9A04602

R9

B.Tech III Year I Semester (R09) Supplementary Examinations, May 2013

**MICROPROCESSORS & MICROCONTROLLERS**

(Common to CSS, IT and ECC)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Draw the block diagram of 8086 and explain each block.  
(b) Discuss the addressing modes provided by 8086 and explain with examples.
- 2 (a) Write an ALP in 8086 to exchange two blocks of 8 bit numbers using string instructions.  
(b) Write an ALP in 8086 to multiply two 8 bit numbers.
- 3 (a) Explain need and importance of DMA.  
(b) Discuss about static RAM and EPROM with reference to 8086.
- 4 (a) What is the use of key board and display controller?  
(b) Give the BSR mode format of 8255.
- 5 (a) What is simplex half and full duplex modes of communication?  
(b) What is the difference between asynchronous and synchronous mode of communication?
- 6 Draw the block diagram for multiple 8259A based interrupt system.
- 7 Draw the schematic for interfacing a stepper motor with 8051 microcontroller and write 8051 ALP for changing speed and direction of motor.
- 8 (a) Explain the advantages of ARM microcontroller with respect to programming events.  
(b) With an example brief out about the MCS-96 microcontrollers.

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**SOFTWARE ENGINEERING**

(Common to CSS, IT and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 How do we define software engineering? What types of changes are made to legacy systems? Why do legacy systems evolve as time passes?
- 2 Which model is classic life cycle? Explain about the model. And compare with incremental model.
- 3 Write in detail about interviewing. Explain with examples.
- 4 Explain about four major elements of design model and draw the diagram for dimensions of design model.
- 5 (a) What are the 3 important roles of a traditional view?  
(b) Explain design elaboration of traditional components.
- 6 (a) Explain about stress testing.  
(b) Explain about performance testing.
- 7 (a) Discuss about determinants of S/W quality.  
(b) Explain about risk mitigation monitoring and management.
- 8 (a) Explain about quality control.  
(b) Explain about quality assurance.

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**OPERATING SYSTEMS**

(Common to IT, ECC and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 Write notes on the following:
  - (a) Multitasking.
  - (b) Real-time embedded systems.
  - (c) System calls.
  
- 2 (a) What is a thread? Illustrate the difference between a traditional single-threaded process and a multithreaded process.  
(b) Explain the following scheduling algorithms with examples:
  - (i) Shortest-remaining-time-first. (ii) Round robin.
  
- 3 (a) Give the definition of swap( ) instruction. Explain the implementation of mutual exclusion using swap( ).  
(b) Explain the different types of storage media.
  
- 4 (a) What is compaction? What are its advantages and disadvantages?  
(b) Explain enhanced second-chance page replacement algorithm with an example. What is the major difference between this algorithm and the simpler clock algorithm?
  
- 5 (a) Define deadlock prevention and deadlock avoidance.  
(b) Explain in detail the deadlock recovery techniques.
  
- 6 (a) What are the approaches for sharing of files? Give their relative merits and demerits.  
(b) How dangling pointer problem occurs when deleting a file? What is the solution for it?  
(c) How garbage collection is used in the context of file system?
  
- 7 (a) Draw the diagram to depict the device functionality progression and explain.  
(b) Why is it difficult to map a logical block number onto the sectors of the disk?
  
- 8 (a) What is key distribution? What are the problems with key distribution?  
(b) How passwords can be used for authentication? What are the merits and demerits of passwords?

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**COMPUTER NETWORKS**

(Common to IT and CSE)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Explain about TCP model. What is the main difference between TCP and UDP?  
(b) Write about fiber optic transmission media.
- 2 (a) Distinguish between the noisy channel and noise less channel protocols.  
(b) Explain CRC method for error checking with example.
- 3 (a) Write short notes on wireless LANs.  
(b) Briefly explain the IEEE 802.11 protocol stack.
- 4 (a) What is hierarchical routing? When it is used? State merits and demerits of hierarchical routing.  
(b) Compare flow control and congestion control.
- 5 (a) Describe in detail about concatenated virtual circuits.  
(b) Discuss in detail about the connectionless internetworking.
- 6 (a) What is meant by marshalling? Explain it in detail.  
(b) Discuss in detail about the real time transport protocol stack with a neat sketch.
- 7 (a) Explain in detail about the hyper text transfer protocol.  
(b) Explain how the dynamic web page generated from the client side.
- 8 (a) Explain the process of converting the message to cipher text by using RSA technique with a suitable example.  
(b) Discuss the different cryptanalysis techniques.

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B.Tech III Year I Semester (R09) Supplementary Examinations, May 2013

**AUTOMATA AND COMPILER DESIGN**

(Common to CSS and IT)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) What is lexical analysis? What is its role in compiler design? Explain with examples.  
(b) Design a DFA for recognizing the language generated by  $a(a + b)^* ab$ .
  
- 2 Construct predictive parsing table for the following grammar.  
 $bexpr \rightarrow bexpr \text{ or } bterm / bterm$   
 $bterm \rightarrow bterm \text{ and } bfactor / bfactor$   
 $bfactor \rightarrow \text{not } bfactor / (bexpr) / \text{true} / \text{false}$   
 Is this grammar LL(1)? Specify your answer with reason.
  
- 3 Construct LALR parsing table for the following grammar. Show the actions of the parser for the string (a, a).  
 $S \rightarrow a / \wedge / (R) \quad R \rightarrow T \quad T \rightarrow S, T / S$
  
- 4 (a) What are different types of three address code statements? Explain with one example for each.  
(b) Generate three address codes for the following.  
 For  $(I = 1; i \leq m; i++) \{ a[i] = b[i] + 10; \}$ .
  
- 5 (a) What is importance of polymorphic functions?  
(b) Write translation scheme for checking polymorphic functions.
  
- 6 (a) Consider following program fragment and discuss issues related to symbol table storage.  

```

int x;
Struct x {
    Float y;
    Float z;
};

```

  
(b) Explain list data structure for symbol table organization.
  
- 7 (a) Write and explain about data-flow analysis of structured programs.  
(b) Write about conservative estimation of data-flow information.
  
- 8 Write differences between single pass and two pass translation.

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B.Tech III Year I Semester (R09) Supplementary Examinations, May 2013

**WEB PROGRAMMING**

(Information Technology)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 What is meant by style? Discuss the mechanisms by which styles can be applied to HTML documents.
- 2 Drivers are concerned with the mileage obtained by their automobiles. One driver has kept track of several tank full of gasoline by recording miles driven and gallons used for each tankful. Develop a java script program that will input the miles driven and gallons used (both as integers) for each tank full. The program should calculate and output HTML text that displays the miles per gallon obtained for each tank full and print the combined miles per gallon obtained for all tank full up to this point. Use prompt dialogs to obtain the data from the user.
- 3 (a) Create an XML schema for a recipe book.  
(b) What is document object model? Explain DOM parser in detail.
- 4 (a) Define java bean. Explain the java bean class preparation.  
(b) With relevant examples explain the different types of beans properties.
- 5 (a) Write short notes on the scalar data present in Perl Scripting.  
(b) Give the procedure to invert the hash.
- 6 (a) Discuss in detail about the subroutine prototypes with suitable examples.  
(b) List and explain the file status checks with examples.
- 7 Discuss with suitable examples, the various list related commands used in Tcl.
- 8 (a) What is a function? Explain the calling of a function with its syntax and example.  
(b) Give brief description about the python modules.

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