USN | | | | | | | | | | 06CS74

Seventh Semester B.E. Degree Examination, June 2012

Embedded Computing Systems

Time: 3 hrs.   Max. Marks:100

**Note: *Answer FIVE full questions, selecting
at least TWO questions from each part.***

PART – A

1 a. Define an embedded system. Explain the components of embedded system hardware.
                                                                (06 Marks)
   b. Point out major differences between Harvard and Von Neuman architecture. **(04 Marks)**
   c. Explain the various software tools for designing an embedded system. **(08 Marks)**
   d. Point out various applications of embedded system. **(02 Marks)**

2 a. Compare the advantages and disadvantages of data transfer using serial and parallel ports/devices. **(10 Marks)**
   b. Describe and compare UART, Rs232C, SDI_o devices. **(10 Marks)**

3 a. What is a timer? How does a counter perform :
       i)   timer functions?
       ii)   prefixed time initiated event generation?
       iii) time capture functions? **(10 Marks)**
   b. Explain the following wireless and mobile system protocols :
       i) Bluetooth   ii) Zig Bee **(10 Marks)**

4 a. What do you mean by throwing an exception? How is the exception condition during execution of a function (routine) handled? **(10 Marks)**
   b. What are the uses of hardware and software assigned priorities in interrupt service mechanism? **(10 Marks)**

PART – B

5 a. What are the different programming models? Give an example, explain the SDFG model.
                                                                (10 Marks)
   b. What is a semaphore? What are the IPC functions used by a software programmer? Explain them. **(10 Marks)**

6 a. What is a process manager? What are its services? **(06 Marks)**
   b. What is RTOS? Point out and explain the various services of RTOS. **(10 Marks)**
   c. Explain the user and supervisory mode structure in OS. **(04 Marks)**

7 a. Explain preemptive scheduling model. Point out the various scheduling models. **(08 Marks)**
   b. What are the important operating system security issues? List the important security function. **(04 Marks)**
   c. What are the methods of optimizing memory space in RTOS? **(08 Marks)**

8 a. What is a target system? How is embedded software loaded into the target system? **(10 Marks)**
   b. What is a simulator? Illustrate the detailed design development process using a simulator. **(10 Marks)**

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06IS72

Seventh Semester B.E. Degree Examination, June 2012

Software Architecture

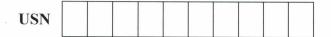Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1. a. Define software architecture. What is architecture business cycle? Explain with a neat diagram. **(10 Marks)**
    b. Define architectural patterns, reference models and reference architectures and bring out the relationships between them. **(06 Marks)**
    c. Explain the various process recommendations as used by an architect while developing software architectures. **(04 Marks)**

2. a. Explain the process control paradigm with various process control definitions. **(06 Marks)**
    b. List the basic requirements for mobile robot architecture. **(04 Marks)**
    c. Explain the process control view of cruise control architectural style and obtain the complete cruise control system. **(10 Marks)**

3. a. What is quality attribute scenario? List the parts of scenario, with an example. **(04 Marks)**
    b. What is availability? Explain the general scenario for availability. **(08 Marks)**
    c. Classify security tactics. What are the different tactics for resisting attacks? **(08 Marks)**

4. a. List the components of pipe and filters architectural pattern. With sketches, explain the CRC cards for the same. **(08 Marks)**
    b. Define blackboard architectural pattern. Briefly explain the steps used to implement the blackboard pattern. **(08 Marks)**
    c. Write a note on the Hearsay – II system. **(04 Marks)**

PART – B

5. a. Define broker architectural pattern. Explain with a diagram the objects involved in a broker system. **(07 Marks)**
    b. Depict the dynamic behavior of MVC with any one scenario. **(07 Marks)**
    c. Give the CRC cards for top level, intermediate level and bottom level PAC agents. **(06 Marks)**

6. a. What are the steps involved in implementing the microkernel system? **(08 Marks)**
    b. Explain the known uses of reflection pattern. **(06 Marks)**
    c. Explain the advantages and disadvantages of a reflective architectural pattern. **(06 Marks)**

7. a. Briefly explain the benefits of master slave design pattern. **(06 Marks)**
    b. What are variants of proxy pattern? **(06 Marks)**
    c. List and explain the steps to implement a whole part structure. **(08 Marks)**

8. a. List the steps of ADD method of architectural design. **(06 Marks)**
    b. Explain with a neat diagram, the evolutionary delivery life cycle model. **(06 Marks)**
    c. What are the suggested standard organization points for view documentation? **(08 Marks)**

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06CS/IS753

Seventh Semester B.E. Degree Examination, June 2012
Java and J2EE

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1 a. List and explain the characteristic features of java language.   **(08 Marks)**
   b. Briefly discuss about the java development tool kit.   **(07 Marks)**
   c. Explain the process of building and running java application program.   **(05 Marks)**

2 a. Explain the constructor method. How it differs from other member function.   **(05 Marks)**
   b. What is an applet? Explain different stages in life cycle of an applet.   **(08 Marks)**
   c. What is a Java exception? Explain the exception handling mechanism with an example.
                                                                                      (07 Marks)

3 a. Write short notes on modifiers :
      i)   Static
      ii) Final
      iii) Abstract
      iv) Native   **(10 Marks)**
   b. What is a package? What are the steps involved in creating user defined packages?**(10 Marks)**

4 a. Discuss about swing features. List its components and containers.   **(10 Marks)**
   b. Develop an applet to create a label, a text field and 4 check boxes with the caption "red",
      "green", "blue" and "yellow".   **(10 Marks)**

PART – B

5 a. What are servlets? Explait the different stages in life cycle of a servlet Apl's. **(08 Marks)**
   b. What is the role of Tomcat for servlet development? Explain the steps involved in
      configuring Tomcat web server.   **(07 Marks)**
   c. Explain the uses of cookies with programs.   **(05 Marks)**

6 a. Briefly discuss about the various JDBC driver types.   **(10 Marks)**
   b. Write a program to display the current contents of a table in the data base.   **(10 Marks)**

7 a. Write the differences between JSP and servlets.   **(03 Marks)**
   b. Explain the Javax servlet packages.   **(10 Marks)**
   c. Develop a simple servlet program that handles the HTTP request and response.   **(07 Marks)**

8 a. Write a program using RMI (Remote Method Innovation) concept such as client and server
      program in which client sends hello message to server and server replies for the client.
                                                                                      (12 Marks)
   b. Write short notes on :
      i)   Session Java Beans
      ii) Entity Java Beans.   **(08 Marks)**

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06IS765

Seventh Semester B.E. Degree Examination, June 2012

User Interface Design

Time: 3 hrs.   Max. Marks:100

**Note: *Answer FIVE full questions, selecting
at least TWO questions from each part.***

PART – A

1   a.   Explain with an example, the different goals of system engineering.   **(08 Marks)**
    b.   List all the stages of action model.   **(04 Marks)**
    c.   What are the advantages and disadvantages of the five primary interaction styles?   **(08 Marks)**

2   a.   Explain with a figure, the three pillars of successful user-interface development.   **(10 Marks)**
    b.   Explain with examples : i) Participatory design, ii) Scenario development.   **(10 Marks)**

3   a.   Explain any two specification methods.   **(10 Marks)**
    b.   Explain with a figure, the OAI model for direct manipulation.   **(10 Marks)**

4   a.   Explain with a figure, the task-related organization of menus.   **(10 Marks)**
    b.   What are the typical bases for sequencing items in the menus?   **(05 Marks)**
    c.   What are the basic goals of language design?   **(05 Marks)**

PART – B

5   a.   Explain the different features of keyboards and function keys.   **(08 Marks)**
    b.   What are the important features of visual display units?   **(06 Marks)**
    c.   What are the limitations of short-term and working memory?   **(06 Marks)**

6   a.   Explain the effect of error messages in the presentation styles.   **(08 Marks)**
    b.   What are the effects of misusing the colors in the presentations?   **(06 Marks)**
    c.   What are the six categories of principles that reveal the complexity of the designer's task?   **(06 Marks)**

7   a.   Explain the use of OAI model to design manuals.   **(08 Marks)**
    b.   What are the steps involved in writing user documentation?   **(06 Marks)**
    c.   What are the benefits of using multiple sources of information design?   **(06 Marks)**

8   Write short notes on :
    a.   Goals for designers
    b.   Users and their tasks
    c.   Detailed design issues
    d.   Web-page design.   **(20 Marks)**

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