Hall Ticket No 　　　　　　　　　　 Question Paper Code: AEC551

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

B.Tech VI Semester End Examinations (Regular) - May, 2019

Regulation: IARE – R16

EMBEDDED SYSTEM DESIGN

Time: 3 Hours   (IT)   Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. (a) List the steps in embedded system design process and explain each step.   **[7M]**

   (b) Briefly describe the distinction between specification and architecture. At what stage of the design methodology would we choose a programming language?   **[7M]**

2. (a) Explain classification embedded systems based on complexity and performance & on triggering requirements.   **[7M]**

   (b) Describe embedded system design goals for designing any embedded system   **[7M]**

UNIT – II

3. (a) Describe about the Interrupt Enable (IE) register format and explain each bit.   **[7M]**

   (b) Write a program to place the code to push R_5, R_6, and A onto the stack and then pop them back them into R_2, R_3, and B, where register B = register A, $R_2 = R_6$, and $R_3 = R_5$.

                                                                                     [7M]

4. (a) Draw the interfacing circuit diagram of LED display with 8051 microcontroller and explain the circuit.   **[7M]**

   (b) Write a program to clear 16 RAM locations starting at RAM address 60H.   **[7M]**

UNIT – III

5. (a) Draw the interfacing circuit diagram of LCD display with 8051 microcontroller and explain the circuit.   **[7M]**

   (b) Discuss the initial steps of embedded program development in Keil IDE.   **[7M]**

6. (a) Explain the operation of keyboard interfacing to 8051.   **[7M]**

   (b) Write an ALP to transfer a letter "A" serially at 4800 baud rate, continuously.   **[7M]**

UNIT – IV

7. (a) Define task and task rates. Explain about operating system services in detail.   **[7M]**

   (b) Discuss about cyclic scheduling with time slicing Explain about scheduling algorithm.   **[7M]**

8. (a) Explain the Real Time Characteristic of embedded operating system. **[7M]**

   (b) Outline about Semaphore. Discuss Interrupt routines in an RTOS Environment. **[7M]**

UNIT – V

9. (a) Describe about the instruction length of ARM processor. Explain the ARM programmers model.

   [7M]

   (b) Explain the ARM core architecture along with bus architecture. **[7M]**

10. (a) Draw the data frame format of CAN? Draw and explain the CAN bus Architecture. **[7M]**

    (b) Discuss the address space in ARMprocessor? Explain the memory management in ARM processor
    . **[7M]**

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