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ECS083

B. TECH.

(SEM. VIII) THEORY EXAMINATION, 2014-15
EMBEDDED SYSTEMS

Time : **3** Hours]   [Total Marks : **100**

Note : Attempt all questions.

1   Attempt any FOUR parts of the following :   **5×4=20**

(a)   What is an embedded system?

(b)   Classify the embedded systems depending on their applications.

(c)   Describe different characteristics of embedded systems.

(d)   Explain the characteristics of real-time systems.

(e)   What are the state-of-the-art applications of embedded systems?

(f)   Describe the role of microcontrollers in designing of embedded systems.

2   Attempt any TWO parts of the following: **10x2=20**

(a)   Draw the structure of a typical embedded system and describe the functionality of each component.

(b)   Describe the features of the operating system used in a real time system. Outline the general issues of an real time operating system.

(c)   Write short notes on the following:

(i)   History of embedded systems

(ii)   Task modeling

3   Attempt any TWO parts of the following :   **10x2=20**

(a)   What is embedded software and explain its architecture? What different types of software architecture are in common use ?

(b)   Explain the following terms: ADC and DAC. Explain the applications of ADC and DAC electronic components with respect to embedding systems.

(c)   Write short notes on the following:

(i)   Signal conditioning and processing.

(ii)   Embedded computation system

4   Attempt any TWO parts of the following :   **10x2=20**

    (a)   What are the different strategies used for controlling the embedded systems? Explain the working the interrupt controlled embedded system.

    (b)   Write short notes on the following:

        (i)   Embedded system encoding

        (ii)   Microkernels

    (c)   Prepare a detailed report on embedded operating systems such as personal digital assistants (PDAs) in particular Androids.

5   Write short notes on any FOUR of the following: **5x4=20**

    (a)   Embedded software

    (b)   Embedded processing

    (c)   Fault tolerance systems

    (d)   Digital signal processing

    (e)   Embedded system tools

    (f)   Real time operating system.

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