



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 110853

Roll No.

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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.