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

(PAPER ID [redacted])

Roll No.

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.

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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

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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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