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B.TECH.

THEORY EXAMINATION (SEM–VIII) 2016-17

EMBEDDED SYSTEMS

Time : 3 Hours *Max. Marks : 100*

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION – A

1. Explain the following: **10 x 2 = 20**

(a) What is an embedded system?

(b) How suitable memory will be selected for the design of an embedded system?

(c) Distinguish between an embedded OS and real time OS.

(d) State the major function of a timer device in an embedded system.

(e) What do you mean by frequency spectrum?

(f) List the difference between ADC and DAC.

(g) What is called as embedded control?

(h) Mention the need of encoding in embedded systems.

(i) Write the use of processor in embedded systems.

(j) State any one language suitable for embedded systems.

SECTION – B

2. Attempt any five of the following questions: **5 x 10 = 50**

(a) Explain the characteristics and requirements of embedded systems.

(b) List and brief the main characteristics of embedded systems that distinguish such systems from other computing systems.

(c) Describe timing and clocks in embedded system with relevant example.

(d) Give the brief content of the following terms with necessary block diagrams.

(i) Signals

(ii) Frequency spectrum

(iii) Sampling

(e) Provide various communication strategies for embedded systems.

(f) Brief the usage of encoding and flow control mechanisms.

(g) Enumerate the issues of fault tolerance in embedded system.

(h) Describe the use of formal methods in verification of embedded system.

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3 (i) Embedded systems are very useful. Justify and state how embedded systems are classified.

(ii) Discuss some applications of embedded systems.

4 Brief the issues of real time operating systems.

5 What do you mean by embedded control? Illustrate the concept of control hierarchy with neat block diagram.