B.TECH.

Roll No. 1303221034

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:

- (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:

- (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:

- 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.

 $5 \ge 10 = 50$

 $2 \times 15 = 30$

 $10 \ge 2 = 20$