

Code No: RT42043C

**R13**

**Set No. 1**

**IV B.Tech II Semester Supplementary Examinations, July/August - 2017**

**EMBEDDED SYSTEMS**

**(Common to Electronics & Communication Engineering, Electronics & Instrumentation Engineering and Electronics & Computer Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

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**PART-A (22 Marks)**

1. a) What is the necessity of sensors in embedded systems? [3]
- b) What is the role of timers in embedded systems? [4]
- c) Difference between maskable & non-maskable interrupts and give one example [4]
- d) Define Real -Time Operating System [3]
- e) What is meant by debugging? What are the tools used for debugging? [4]
- f) What type of translation tools used in embedded system design process? [4]

**PART-B (3x16 = 48 Marks)**

2. List the various Hardware functional blocks that constitutes Embedded System and Briefly explain their features and usage. [16]
3. a) Compare the advantages and disadvantages of data transfers using serial and parallel ports [8]
- b) Explain use of each control bit of I<sup>2</sup>C bus. [8]
4. a) Describe interrupt servicing mechanism and give the sources of interrupts. [10]
- b) What are the advantages of DMA data transfer over interrupt driven data transfer. [6]
5. a) What is meant by Co-operative Scheduling? When do we use Co-operative scheduling? [8]
- b) What is Dead-Lock? How to avoid? [8]
6. a) Explain embedded Software development process and draw the necessary diagrams [10]
- b) Write a short note on Boundary scan. [6]
7. a) Explain why testing an Embedded System is a difficult task? [6]
- b) What is the necessity of Pre-processors, Interpreters, Compilers and Linkers, [10]