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**MANIPAL INSTITUTE OF TECHNOLOGY**  
**MANIPAL**  
*A Constituent Institution of Manipal University*

**SEVENTH SEMESTER B.TECH. (INSTRUMENTATION AND CONTROL ENGG.)**  
**END SEMESTER EXAMINATIONS, NOV/DEC 2016**

**SUBJECT: REAL TIME EMBEDDED SYSTEM [ICE 443]**

Time: 3 Hours

MAX. MARKS: 50

**Instructions to Candidates:**

- ❖ Answer **ANY FIVE FULL** questions.
- ❖ Missing data may be suitably assumed.

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| <b>1A.</b> | Explain the working & key features of C55x processor.  | <b>4</b> |
| <b>1B.</b> | With an application explain how multi-processor SOC works.   | <b>3</b> |
| <b>1C.</b> | With timing diagram, briefly explain SRAM read operation.  | <b>3</b> |
| <b>2A.</b> | Explain Direct mapped cache and set associate cache with examples.   | <b>4</b> |
| <b>2B.</b> | What is cache? Explain how data flows from cache to processor and memory and vice versa?   | <b>4</b> |
| <b>2C.</b> | List the drawback in Bluetooth protocol.   | <b>2</b> |
| <b>3A.</b> | How page fault occurs? Explain how page fault will be serviced?  | <b>4</b> |
| <b>3B.</b> | Explain the execution of READ operation in DRAM with timing diagram and timing parameters  | <b>4</b> |
| <b>3C.</b> | List all OSI layers and explain about presentation layer   | <b>2</b> |
| <b>4A.</b> | Why Hotspot occurs? What are the power saving modes that are implemented in general embedded system setup? Explain with the help of a state machine diagram. | <b>4</b> |
| <b>4B.</b> | Explain with an example the role of cache in memory organization and explain how data transfer occurs in it.   | <b>5</b> |
| <b>4C.</b> | Write the expression for power consumption in CMOS (ignoring the leakage)  | <b>1</b> |
| <b>5A.</b> | With case study explain the working of inter integrated circuit communication protocol.  | <b>4</b> |
| <b>5B.</b> | Explain the following. 1) Ethernet Mac algorithm 2) CSMA/CD with state machine diagram.  | <b>4</b> |
| <b>5C.</b> | List the difference between Zigbee and Bluetooth protocol  | <b>2</b> |
| <b>6A.</b> | Explain the working of IEEE 802. 11 protocol   | <b>5</b> |
| <b>6B.</b> | Illustrate the working of Bluetooth protocol.  | <b>5</b> |