Code: 9A04701 **R09**

B.Tech III Year II Semester (R09) Supplementary Examinations December/January 2015/2016

EMBEDDED REAL TIME OPERATING SYSTEMS

(Electronics & Computer Engineering)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) What is an embedded system? Explain various application areas of embedded systems.
(b) What is a sensor and an actuator? Explain the role of each in embedded system design.

2 (a) Explain the following quality attributes in embedded system design context:
(i) Response. (ii) Throughput. (iii) Reliability. (iv) Maintainability.
(b) Write the fundamental issues in hardware software co-design.

3 (a) Give a note on electronic design automation (EDA) tools.
(b) What are the embedded firmware design approaches? Explain.

4 (a) What is a task? How is it different from a process and a thread? Explain various task scheduling techniques in detail.
(b) Describe the purpose of device drivers.

5 (a) Explain serial bus communication protocols in detail.
(b) Explain how parallel communication network works using ISA.

6 (a) Discuss in detail, state machine programming model for event-controlled program flow.
(b) What is the significance of UML modeling? Explain.

7 (a) Explain interrupt routines in RTOS environment and explain how handling of interrupt source calls is done.
(b) Write about OS security issues.

8 Discuss the case study an embedded system for a smart card.

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