Code: 9A04701

R09

B.Tech III Year II Semester (R09) Supplementary Examinations May/June 2017

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) Identify and list the desired features of an Embedded Processor to build complex systems.
(b) Briefly explain the communication interfaces available on board and external to an embedded platform.

2 (a) Distinguish between Operational and Non-operational quality attributes of embedded system. List and very briefly explain three attributes in each category.
(b) Identify and explain the critical characteristics of a real time embedded system with an example.

3 (a) Explain the significance of embedded firmware. Write different approaches for embedded firmware development.
(b) Write the advantages of Integrated Circuits (ICs). With example explain different types of integration for ICs.

4 (a) Distinguish between a function, ISR and Task.
(b) With an illustration, explain the use of multiple semaphores for task synchronization.

5 (a) What are the internal serial devices in 8051?
(b) Compare and very briefly explain ISA, PCI and PCI-X Bus protocols.

6 (a) With an example show the UML representation of state diagram, class diagram and object diagram.
(b) Explain and show the representation of UML basic elements.

7 (a) Compare and list Preemptive and Non-preemptive scheduling algorithms. State merits and demerits.
(b) Write the functional and non-functional requirements of RTOS for an embedded design.

8 (a) For automotive embedded application write the different types of serial interface buses.
(b) Write short notes on communication between Orchestra robots.

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