Code: EC7T4A

IV B.Tech - I Semester – Regular/Supplementary Examinations
October - 2019

EMBEDDED AND REAL TIME SYSTEMS
(ELECTRONICS & COMMUNICATION ENGINEERING)

Duration: 3 hours   Max. Marks: 70

PART – A

Answer *all* the questions.   All questions carry equal marks

$$11 \times 2 = 22 \text{ M}$$

1.
   a) What are the common structure units in most processors?
   b) List the differences between embedded system and general computing system.
   c) Define the quality and non-quality attributes of an embedded system.
   d) What is target system?
   e) What is the role of ISR in embedded systems?
   f) Explain the difference between 'real time' and 'real time clock'.
   g) List out the different communication Interface used in an embedded system.
   h) What are the emerging parallel bus standards?
   i) What is the I^2C protocol?
   j) What are the requirements of the ACC?
   k) What is a class diagram?

PART – B

Answer any **THREE** questions. All questions carry equal marks.

$$3 \times 16 = 48 \text{ M}$$

2. a) Explain the classification of the embedded systems and explain each of them.   8 M

   b) Illustrate an application-specific embedded system with suitable example.   8 M

3. a) Explain the important operational quality attributes to be considered in any embedded system design.   8 M

   b) Explain Hardware and Software Co-Design with all the salient features.   8 M

4. a) What are the different possible sources of interrupts? Explain different interrupt service mechanisms.   8 M

   b) What is a timer? How does a counter perform?   8 M
     i) Timer functions.   ii) Time capture functions

5. a) Discuss the features and uses of PCI bus.   8 M

   b) Explain in detail about USB and IEEE 1394 buses.   8 M

6. a) Explain the role of Integrated Development Environment (IDE) in the design process of an Embedded System application.   8 M

 b) Distinguish between TCP and UDP protocols.   8 M