



**B.E DEGREE EXAMINATIONS: APRIL 2015**

(Regulation 2009)

Eighth Semester

**ELECTRONICS AND COMMUNICATION ENGINEERING**

ECE147: Embedded Systems

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. One of the most critical needs of an embedded system is to
  - a) Integrate COM and I/O port on the chip
  - b) Increase the operating speed
  - c) Decrease power consumption and space
  - d) Increase on chip components
2. Embedded system need watch dog timer for
  - a) System clock
  - b) Real time program scheduling
  - c) For interrupt control
  - d) Device management
3. The transfer of data using parallel lines is
  - a) Faster and less expensive
  - b) Faster and more expensive
  - c) Slower but less expensive
  - d) Slower and more expensive
4. One of the following is not a serial bus. Identify.
  - a) I2C
  - b) CAN
  - c) USB
  - d) ISA
5. In PIC 16 architecture, the device is held in reset for \_\_\_\_ ms to allow VDD to rise to an acceptable level.
  - a) 7.2 ms
  - b) 7.7 ms
  - c) 28 ms
  - d) 10 ms
6. Which one of the following PIC – 16 series instruction is single bit manipulation instruction
  - a) clrf f
  - b) retfie
  - c) bcf f, b
  - d) incf f, F(W)



(ii) How internet enabled devices are incorporated in embedded systems? Use suitable diagrams and explain. (7)

22. a) (i) Device drivers are processor sensitive programs. Why? (7)  
(ii) Describe the features of HDLC serial communication device. (7)

**(OR)**

- b) (i) Discuss on an application demonstrating the importance of timer in embedded system design. (7)  
(ii) Elucidate the features of CAN bus protocol. (7)

23. a) (i) Illustrate the addressing modes of PIC 16 series microcontroller with examples. (7)  
(ii) Explain how multiple interrupt requests are handled by this embedded processor. (7)

**(OR)**

- b) (i) With necessary diagrams explain the ADC unit of the PIC 16 series microcontroller. (7)  
(ii) With flow chart and associated hardware explain how the ADC unit can be used for interfacing the embedded system with analog world. (7)

24. a) (i) Give a brief note on Real time kernels. (7)  
(ii) How to analyze the memory requirement for an embedded system design? Illustrate with schematics. (7)

**(OR)**

- b) (i) What is an event? How an event register identifies the source of an event? (7)  
(ii) What is the structure of interrupts? Also explain Interrupt Service Thread (IST). (7)

25. a) (i) What does the linkers / locator tool in an IDE do? Explain it with an example. (7)  
(ii) Explain the different methods available for getting an embedded software into remote target. (7)

**(OR)**

- b) (i) With an example explain how to build real time applications with real time programming languages. (7)  
(ii) What are the advantages and disadvantages of using real time operating system? (7)

\*\*\*\*\*