

B.Tech Sem – VI (2007 Course) (Electronics) : SUMMER - 2019

SUBJECT: EMBEDDED SYSTEMS

Day : Wednesday
Date : 22/05/2019

Time : 02.30 PM TO 05.30 PM
Max. Marks: 80

S-2019-3122

N.B.

- 1) Q.1 and Q.5 are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from each Section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answer to both the sections should be written in **SAME** Answer book.
- 4) Draw neat and labelled diagrams wherever necessary.
- 5) Assume suitable data if necessary.

SECTION – I

- Q.1**
- a) Why mode 0 is not suitable for 8051 communication? List two reasons why step bits are used in asynchronous communication. **(05)**
 - b) Discuss I²C bus operation. **(05)**
 - c) Discuss nested interrupt handling scheme in ARM processor. **(04)**
- Q.2**
- a) Describe the various modes of 8051 timer. **(07)**
 - b) Draw and explain interfacing of DAC with 8051 microcontroller. Write a program to generate a triangular wave. **(06)**
- Q.3**
- a) Draw the register file structure of PIC microcontroller. Explain the addressing modes. **(07)**
 - b) Draw the interfacing of PIC's UART to PC. Explain UART's data handling circuitry. **(06)**
- Q.4**
- a) Discuss the use of barrel shifter in ARM processor. Explain MOV instruction with barrel shifter. **(07)**
 - b) Explain the architecture of AVR micro controller. **(06)**

SECTION – II

- Q.5**
- a) Discuss the embedded system design issues and techniques. **(05)**
 - b) Discuss embedded programming in 'C'. **(05)**
 - c) Discuss memory management in the embedded system. **(04)**
- Q.6**
- a) Discuss interrupt servicing mechanism. **(07)**
 - b) Write the steps involved in selecting the processor for an embedded system. **(06)**
- Q.7**
- a) What is inter-process communication? **(07)**
 - b) What is RT Linux module? What are the function calls provided for timer? **(06)**
- Q.8**
- a) Discuss various scheduling policies with example. **(07)**
 - b) Write a short note on semaphore. **(06)**

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