

B.TECH SEM – VI (2007 COURSE) (ELECTRONICS) :
SUMMER - 2018

SUBJECT: EMBEDDED SYSTEMS

Day : **Friday** Time : **02.30 PM TO 05.30 PM**
Date : **01/06/2018** S-2018-2719 Max. Marks: 80

N. B. :

- 1) **Q. No. 1 and Q. No.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 **SEPARATE** answer books.
- 4) Assume suitable data, if necessary.
- 5) Use of non-programmable **CALCULATOR** is allowed.

SECTION-I

- Q.1** a) Brief the role of SCON register in 8051 microcontroller. (05)
b) Draw & explain the reset and brown out circuit of PIC microcontroller 16C6X. (05)
c) List the features of ARM Processor. (04)
- Q.2** a) Write a program in 8051 to generate square wave of 2KHZ at P1.0. The 8051 is running at 12MHZ. (07)
b) Interface LCD to 8051 using port 1 only. Write a program to display a message "HELLO". (06)
- Q.3** a) Interface PIC microcontroller to LCD & Write a program in assembly language to display a "BHARATI". (07)
b) Explain the following instruction with suitable example (06)
i) BTFSC ii) ANDLW iii) DECFZS
- Q.4** a) Draw & explain the register file and memory map of AVR microcontroller. (07)
b) What is the role of barrel shifter in ARM core? Explain with suitable example different barrel shifter operation used in ARM instruction set. (06)

SECTION-II

- Q.5** a) Write down the advantages of ES? Give some example of small scale ES? (04)
b) What are device driver? What is the role of device driver in an ES? (05)
c) What are the different criteria while selecting a processor in ES? (05)
- Q.6** a) What is RTOS? Why do we need RTOS in ES? What are the differences between RTOS and OS in PC? (07)
b) Draw the block diagram of structural units of processor and explain the functions of any 5 structural units. (06)
- Q.7** a) With suitable examples explain how queues message mailboxes can be used in inter process communication. (07)
b) Define: i) Task ii) Task State iii) Process (06)
- Q.8** a) What is meant by shared data? What are the advantages & disadvantages of sharing data problems? (07)
b) What is memory management in RTOS? (06)

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