

**B.TECH SEM - VI (2007 COURSE) (E & TC ENGG.) :
SUMMER - 2018**

SUBJECT: BASIC EMBEDDED SYSTEMS

Day : **Friday**
Date : **01/06/2018**

S-2018-2743

Time : **02.30 PM TO 05.30 PM**
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 the both sections in **SEPARATE** answer book.
- 4) Assume suitable data, if necessary.
- 5) Draw neat and labeled diagram **WHEREVER** necessary.

SECTION-I

- Q.1**
- a) Explain interrupts in 8051 microcontroller. (05)
 - b) Write a note on I/O ports in PIC microcontroller. (04)
 - c) Compare THUMB and ARM instruction set features. (05)
- Q.2**
- a) Draw and explain with circuit diagram interfacing of 8051 with LM35 temperature sensor. (06)
 - b) Assume crystal frequency of 12 MHz. What value to be loaded in to timers registers if you want to have a time delay of 10 msec? Write the program for timer 1 to create a pulse width of 10 msec. (07)
- Q.3**
- a) Explain feature of PIC 16C6X series. (06)
 - b) With neat diagram explain capture mode of PIC microcontroller. (07)
- Q.4**
- a) Draw and explain Dataflow model of ARM core. (07)
 - b) Explain register file structure of ARM processor. (06)

SECTION-II

- Q.5**
- a) What is embedded system? Explain in brief classification of embedded systems with examples. (06)
 - b) Explain deadlock in RTOS. (04)
 - c) Define and explain: (04)
 - i) Task
 - ii) Queue
- Q.6**
- a) What are the software design challenges in development of embedded systems? (07)
 - b) List various application area of embedded system. (06)
- Q.7**
- a) What is shared data problem? Explain with suitable example How this problem can be solved? (06)
 - b) What is task? Define and explain in detail the different task states. (07)
- Q.8**
- a) State various software architectures. Explain round robin with interrupt architecture with suitable example. (07)
 - b) What is priority inversion? Explain with suitable example. (06)

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