No. of Printed Pages : 03 **Roll No. .....**

H-51

B. Tech. EXAMINATION, Dec. 2017

(Eighth Semester)

(B. Scheme) (Re-appear Only)

(ECE)

ECE-426-E

EMBEDDED SYSTEM DESIGN

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. What is an embedded system ? Explain in brief about different areas of embedded system applications. **15**

2. (a) Draw the architecture of ARM microcontroller. **8**

(b) Explain the function of each bit of Status Register SREG of AVR microcontroller. **7**

Unit II

3. (a) Explain the functional differences between timer 0 and timer 2 of AVR microcontroller.

(b) Write a program to generate time delay of 10ms using time 1 in normal mode. Choose prescaler of 1024. Exclude the instruction overhead due to the instruction in loop. Assume XTAL = 8MHz. **15**

4. What is Watch-dog timer, explain Power-down modes of AVR microcontroller in detail. **15**

Unit III

5. Write short notes on the following AVR application : **15**

(a) Color LCD

(b) DTMF.

6. What is the maximum possible bit rate with the RS 232 subsystem with the SPI ? **15**

Unit IV

7. Which are the basic services offered by RTOS (Real Time Operating Systems) for the embedded system design ? Describe any *one* service in short. **15**

8. Write short notes on the following :

(a) Loaders

(b) Compilers

(c) Assemblers. **15**