

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2017

Subject Code: 2160909

Date: 20/11/2017

Subject Name: Advance Microcontrollers

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1**
- (a) List the features of P89V51RD2. **03**
 - (b) Draw PCA interrupt system of P89V51RD2. **04**
 - (c) Which are the different modes of operation of the PCA timer? Explain PWM mode in detail with block diagram. **07**
- Q.2**
- (a) Explain PCA Module 4 as Watchdog Timer. **03**
 - (b) Compare Von Neumann and Harvard architecture. **04**
 - (c) Explain SPI control and status register and draw the machine cycle of SPI data transfer with CPHA = 0. **07**
- OR**
- (c) Write a program to design PCA module of 89V51RD2 to calculate the width of a detected pulse. The pulse must begin with a rising edge and end with a falling edge on the CEX0 pin. **07**
- Q.3**
- (a) Explain the CCAPMn Register in PCA timer of P89V51RD2. **03**
 - (b) Explain 3stage pipelining in cortex CPU. **04**
 - (c) Write and explain features of STM32F4xx. **07**
- OR**
- Q.3**
- (a) Explain CCON – PCA register. **03**
 - (b) List out steps required to enable interrupts safely in an IRQ handler. **04**
 - (c) Explain bit banding technique with suitable example. **07**
- Q.4**
- (a) Explain Round Robin with Interrupt Architecture. **03**
 - (b) Explain reset circuit of STM32F4xx. **04**
 - (c) Explain Thumb 2 Instruction set of ARM CORTEX. **07**
- OR**
- Q.4**
- (a) Explain high speed output toggle mode of 8051 microcontroller. **03**
 - (b) Explain multi-AHB bus matrix in STM32F4XX. **04**
 - (c) Explain the features of GPIO in detail. **07**
- Q.5**
- (a) What do you mean by enumerator? **03**
 - (b) Explain Round Robin Architecture. **04**
 - (c) Explain GPIO registers in detail. **07**
- OR**
- Q.5**
- (a) Explain tail chaining in cortex M processors. **03**
 - (b) Explain TIM6 timer. **04**
 - (c) Explain NVIC Controller of ARM CORTEX. **07**
