

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME - SEMESTER- II(New course) • EXAMINATION (Remedial) – WINTER- 2015**

**Subject Code: 2723110****Date: 08/12/2015****Subject Name: Embedded Systems for Biomedical applications****Time: 2:30 pm to 5:00 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) What are the various forms of memories in the systems? Explain in detail. **07**  
 (b) Define and explain with examples: Embedded Systems on a Chip (SoC). **07**

- Q.2** (a) Explain difference between CISC and RISC processors with proper examples. **07**  
 (b) Explain different Special Function Registers (SFR) of Intel MCS51 in detail. **07**

**OR**

- (b) Explain of CPU architecture of PIC micro-controller. **07**

- Q.3** (a) Explain I2C communication using PIC controller with proper block diagram and flow chart. **07**  
 (b) Explain the multitasking feature supported by an RTOS. **07**

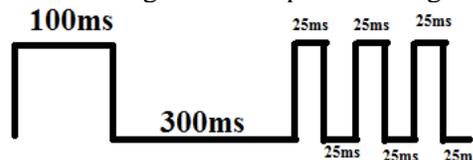
**OR**

- Q.3** (a) A 1-Hz external clock is being fed into pin T1 (P3.5) of 8051. Write a code to count pulses from P3.5 and send counted value to Port 1. **07**  
 (b) Write a c code to transfer the letter "a" serially at 4800 baud continuously. Use 8-bit data and 1 stop bit using Intel MCS51. **07**

- Q.4** (a) A switch is connected to pin P2.7 of 8051 controller. Write a c code to monitor the status of SW and perform the following: **07**  
 If SW=0, the DC motor moves clockwise.  
 If SW=1, the DC motor moves counterclockwise  
 (b) Explain interfacing of 8051 with 8 bit ADC. Write a code to read analog value from ADC and convert it to decimal, and put it on Port 2 of 8051. **07**

**OR**

- Q.4** (a) Write a code to generate below given wave pattern using timer of 8051. **07**



- (b) Explain different types of DAC in detail. **07**

- Q.5** (a) Design a Glaucoma screening device. Explain required sensor specification, required hardware or component specification for your design with proper justification. **07**  
 (b) Write a c code for Glaucoma screening device. Explain it with proper circuit diagram and flow chart. **07**

**OR**

- Q.5** (a) Design Drug delivery system. Explain required sensor specification, required hardware or component specification for your design with proper justification. **07**  
 (b) Write a c code for Drug delivery system. Explain it with proper circuit diagram and flow chart. **07**

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