

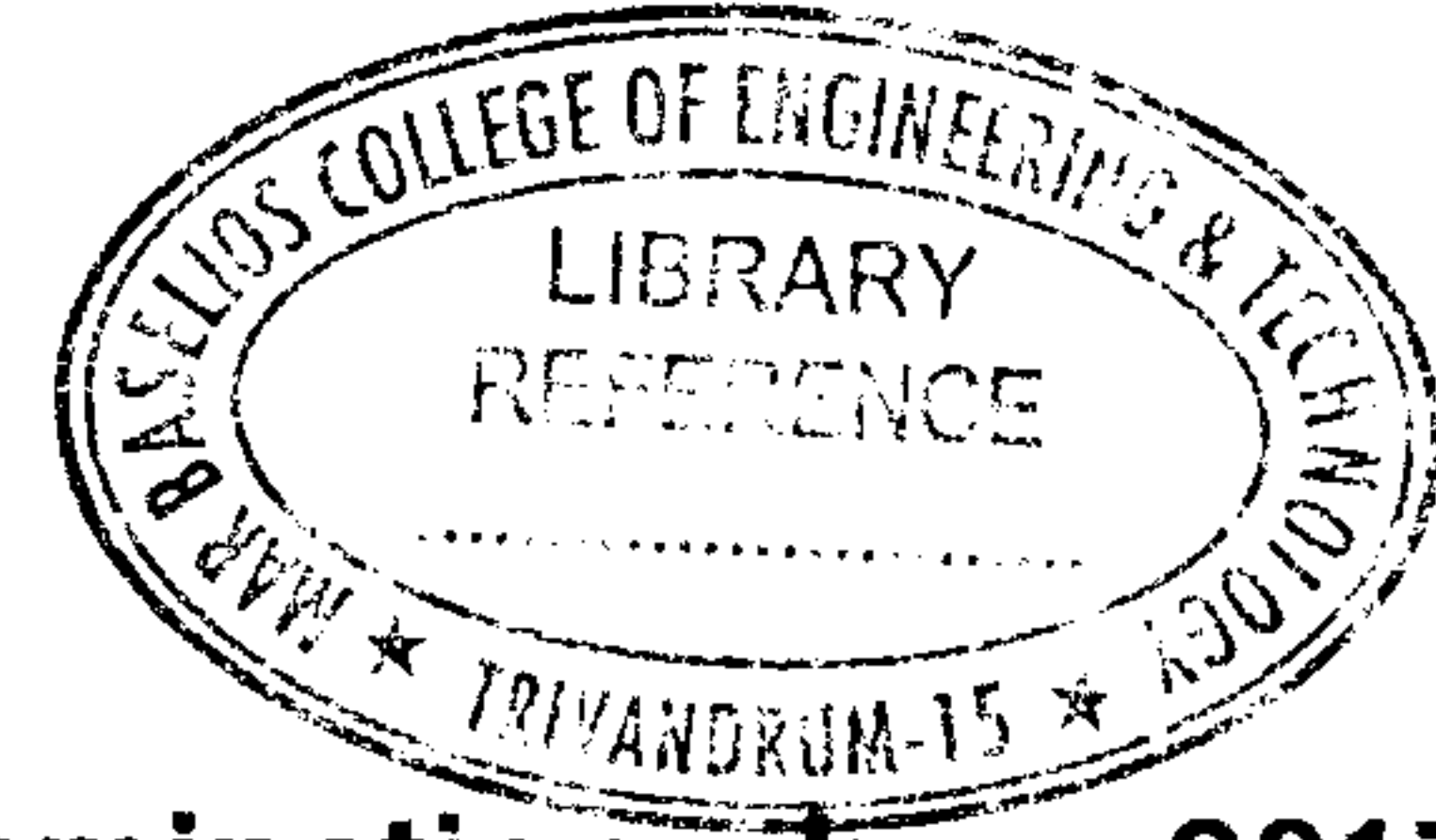


(Pages : 2)

B – 6099

Reg. No. :

Name :



**Fourth Semester B.Tech. Degree Examination, June 2017
(2008 Scheme)**

08.403 : MICROCONTROLLER-BASED DESIGN (F)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions :

1. Explain the features of a microcontroller.
2. Write an 8051 ALP to find the sum of squares of 10 numbers stored in successive RAM locations.
3. Explain the dual role of port P0. Why does it need pull-up resistors ?
4. Write an 8051 C program to reverse the digits of an integer read in through port of P3. Send the result to port P2.
5. Explain mode 2 working of 8051 timers.
6. Describe the structure and function of TMOD and TCON registers.
7. Briefly explain RS232 and its handshaking signals.
8. Explain the pins of ADC0804.
9. Discuss ARM processors.
10. Describe the MOVX instruction. How is it different from MOVC ? **(10×4=40 Marks)**

P.T.O.



PART – B

Answer **one** question from **each** Module.

Module – I

11. a) Explain the conditional branch instructions of 8051. 8
- b) Write an 8051 ALP to convert a series of ASCII numbers located in ROM starting from 400 H to packed BCD. Store the BCD in RAM locations starting from 40 H.
- ```
ORG 400 H
MYDATA : DB "25798436"
```
- 12
12. a) Explain the ports of 8051. 10
- b) Write an 8051 C program to check the status of a switch SW connected to pin P3.3. If SW = 0, generate a square wave of 25% duty cycle on P3.7. Else, generate a square wave of 50% duty cycle on P3.7. 10

## Module – II

13. a) Explain the interrupts and interrupt vector table of 8051. 10
- b) Write an 8051 ALP to get data from P3 and send it to P2 while timer 1 is turning on and off (on-time = off-time = 100 ms) the LED connected to P1.2 every second. 10
14. a) Describe the steps to be taken in programming 8051 to transfer data serially. 10
- b) Write an 8051 ALP to transfer the numbers 1 to 9 serially at a baud rate of 57600. 10

## Module – III

15. a) Explain with a diagram the 8051 connection to external data ROM. 8
- b) Write an 8051 ALP to detect and identify key presses when it is interfaced with a keyboard. 12
16. a) Explain in detail how the 8051 is interfaced to the stepper motor. 8
- b) Write an 8051 ALP to transfer 30 bytes of data from external data ROM starting from location 2000 H to internal RAM. Display this data on the LCD with a suitable delay. 12