

**B.TECH. SEM -V (E & TC ENGG.) 2014 COURSE (CBCS) :  
WINTER - 2017**

**SUBJECT: MICROPROCESSORS AND MICROCONTROLLERS**

**Day:** Thursday  
**Date:** 11/01/2018

**W-2017-2144-  
A**

**Time:** 02.30 PM TO 05.30 PM  
**Max. Marks:** 60

**N.B:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non-programmable **CALCULATOR** is allowed.
- 4) Neat diagram must be drawn **WHEREVER** necessary.
- 5) Assume suitable data **WHEREVER** necessary.

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- Q.1** a) Differentiate between Harvard and VON-Neumann Architecture. (04)  
b) Write a note on Interrupts of 8085? (06)

**OR**

- Q.1** Draw and explain the Architecture of 8085. (10)

- Q.2** a) Explain the memory organization of 8051. (06)  
b) Write a program to multiply two 8-bit numbers stored at 35H and 46H in RAM of 8051 and save the result at 30H. (04)

**OR**

- Q.2** a) Explain the contents of TMOD and TCON registers in 8051. (05)  
b) Explain the addressing modes of 8051 with examples. (05)

- Q.3** Write a program to Interface 16x2 LCD and Display "JAI MAHESHMATI". (10)

**OR**

- Q.3** a) Write a program to rotate stepper motor 50 steps clock-wise and 200 steps anti-clockwise repetitively. (06)  
b) Write the contents of program status word (PSW) of 8051. (04)

- Q.4** a) Compare features of different PIC microcontroller series. (05)  
b) What are the different Oscillator options available in PIC18F series? (05)

**OR**

- Q.4** a) Write a short note on the following: (06)  
i) Watchdog Timer ii) Brown-out Reset  
ii) Stack overflow RESET  
b) Write a note on I/O ports of PIC18F. (04)

- Q.5** a) What are the Interrupts present in PIC18F? Explain the role of GIE and PEIE. (05)  
b) Draw the Interfacing of PIC18F with 4x4 keyboard and explain Key-Scanning. (05)

**OR**

- Q.5** a) Draw the Interfacing of PIC18F with 7 seven segment display and explain its algorithm. (06)  
b) Name the registers related to timers present in PIC18F. (04)

- Q.6** a) Explain CAPTURE Mode in CCP of PIC microcontroller with neat diagram. (06)  
b) Write a note on I2C Protocol. (04)

**OR**

- Q.6** a) Explain COMPARE Mode in CCP of PIC microcontroller with neat diagram. (05)  
b) Write a note on PWM and explain control of DC motor with PWM. (05)

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