

*E & TC*      *Exam*       $\nabla$

**B.Tech. SEM -V (E & TC Engg.) 2014 Course (CBCS) : SUMMER - 2019**  
**SUBJECT: MICROPROCESSORS & MICROCONTROLLERS**

Date: Thursday  
Day: 09/05/2019

**S-2019-2700**

Time: 10.00 AM TO 01.00 PM  
Max. Marks: 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

- Q.1** a) Differentiate between Harvard and Von-Neumann architectures. (04)  
b) Draw and explain the interrupt structure of 8085. (06)

**OR**

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

- Q.2** a) Explain different modes of timers in 8051 with the help of TMOD contents. (05)  
b) Write a note on ports of 8051. (05)

**OR**

- Q.2** a) Explain the addressing modes of 8051 with examples. (06)  
b) Write the contents of flag register of 8051. (04)

- Q.3** a) Calculate the contents of 8051 timers to generate a square wave with 7 msec time period, 50% duty cycle. Write a program for 8051 to generate square wave at port P1. (07)  
b) Explain the contents of PCON register. (03)

**OR**

- Q.3** a) Write an algorithm for key scanning in a 4X4 matrix keyboard. (05)  
b) Draw and explain the interfacing of stepper motor with 8051. (05)

- Q.4** Compare features of different PIC microcontroller series. (10)

**OR**

- Q.4** Explain following features of PIC18F (10)  
i) Stack overflow reset  
ii) Watchdog timer  
iii) Internal memory organization

- Q.5** a) Name the interrupts present in PIC18F. (04)  
b) Write a program to perform 16-bit subtraction in PIC18F. (06)

**OR**

- Q.5** Write a program to interface PIC18F with LCD and display following string on LCD. (10)

"BLACK PANTHER"

- Q.6** a) Explain CAPTURE mode in PIC with neat diagram. (05)  
b) Write a note on SPI protocol. (05)

**OR**

- Q.6** a) Draw and explain interfacing of EEPROM with PIC18F. (05)  
b) Write a note on I2C protocol. (05)

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