

**B.TECH. SEM -V ELECTRICAL 2014 COURSE (CBCS) : WINTER -  
2017**

**SUBJECT : MICROCONTROLLER**

Day : **Saturday**  
Date : **13/01/2018**

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

**W-2017-2135**

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

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- Q.1**
- a) Discuss the advantages and disadvantages of Harvard and Von Neumann architectures. (05)
  - b) Discuss the function of each bit of PSW register. (05)
- OR**
- a) What is the difference between overflow and carry flag? Explain with an example. (05)
  - b) Enlist the salient features of 8051 Microcontrollers. (05)
- Q.2**
- What happens after the execution of following instructions: (10)
- i) MOV SP, #84
  - ii) JZ EEH
  - iii) JC 02
  - iv) INC @ R<sub>2</sub>
  - v) CPL 91H
- OR**
- What are stack related instructions? Explain each in detail. (10)
- Q.3**
- a) Write the 8 bit format of SFR SCON. What is the use of bit REN? Justify with an example. (05)
  - b) What is meant by vectored interrupts? Enlist the various vectored interrupts. State their addresses and flags affected and also the cause of interrupt (if enabled) and their priorities. (05)
- OR**
- a) What is the difference in RET and RETI instructions? (05)
  - b) Explain in detail any one SFR for external interrupt. (05)
- Q.4**
- a) Explain with neat diagram interfacing of ADC with 8051 Microcontroller. (05)
  - b) Draw and explain interfacing of 8051 to DC Motor. (05)
- OR**
- a) Explain stepper motor interfacing with 8051 Microcontroller. (05)
  - b) Design a traffic light control system using 8051 Microcontroller (05)
- Q.5**
- a) With suitable example explain addressing modes of PIC Microcontroller. (05)
  - b) Draw and explain architecture of PIC Microcontroller. (05)
- OR**
- a) With suitable example, explain instruction set of PIC Microcontroller. (05)
  - b) Compare various addressing modes of PIC Microcontroller (05)
- Q.6**
- a) Explain different I/O ports of PIC Microcontroller. (05)
  - b) Explain in detail timer operation of PIC Microcontroller. (05)
- OR**
- a) Enlist the different interrupts of PIC Microcontroller and explain any two of them in detail (05)
  - b) Explain with neat diagram interfacing of ADC with PIC Microcontroller. (05)