

**S.Y. B. SC. (COMPUTER SCIENCE) SEM –III (CBCS - 2016  
COURSE) :WINTER - 2017**

**SUBJECT: DIGITAL SYSTEMS & MICROPROCESSORS**

Day : **Monday**  
Date : **06/11/2017**

**W-2017-0723**

Time: **11.00 A.M. TO 02.00 PM**  
Max. Marks: **60**

**N. B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw diagrams **WHEREVER** necessary.

**Q.1** Answer any **TWO** of the following: **(12)**

- a) Explain the working of 2-bit flash ADC with appropriate diagram.
- b) Draw block diagram of UART and explain its different blocks.
- c) With neat diagram explain the concept of associative memory.

**Q.2** Answer any **TWO** of the following: **(12)**

- a) i) Draw circuit diagram for R-2R Ladder DAC and explain its working in brief.  
ii) Determine the full scale output voltage and output voltage for input 1100 if the reference Voltage is 12V.
- b) Explain the functions of carry flag, interrupt flag, overflow flag, zero flag, parity flag and auxiliary carry flag.
- c) Draw block diagram of DMA controller and explain the function of each block in brief.

**Q.3** Answer any **TWO** of the following: **(12)**

- a) Explain any three addressing modes with examples.
- b) Explain RS-232 serial interface.
- c) Write an assembly language program to find the largest among two numbers.

**Q.4** Answer any **THREE** of the following: **(12)**

- a) Explain synchronous serial data transfer.
- b) Explain the general register organization in microprocessors.
- c) Explain any four parameters of ADC.
- d) Draw and explain control word format for PPI.

**Q.5** Answer any **FOUR** of the following: **(12)**

- a) List any three features of RISC processor.
- b) Differentiate between assembly level language and machine level language.
- c) Explain the functions of the following instructions:  
i) MOV AX, [2000H]                      ii) ADD AX, BX                      iii) JZ NEXT
- d) Explain: address bus, data bus and control bus in a computer organization.
- e) Explain interrupts of 8086 microprocessor.
- f) How is the stack operation executed?

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