

**S.Y.B.SC. (COMPUTER SCIENCE) SEM –III (2014 COURSE) :**  
**WINTER - 2017**

**SUBJECT: COMPUTER ORGANIZATION AND MICROPROCESSORS**

Day: **Thursday**  
Date: **02/11/2017**

**W-2017-0747**

12.00 NOON TO 02.00 PM  
Time:  
Max. Marks: 40

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**N.B.:**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the right indicate **FULL** marks.
  - 3) Draw diagrams **WHEREVER** necessary.
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- Q1** Answer **ANY TWO** of the following- **[10]**
- a) With neat circuit diagram explain the working of 3- bit flash ADC.
  - b) What do you mean by cache mapping? Explain direct mapping technique in detail.
  - c) Explain DMA process with necessary diagram.
- Q2** Answer **ANY TWO** of the following- **[10]**
- a) Draw and explain internal block diagram of Programmable Peripheral Interface.
  - b) Give five point comparison between RISC and CISC architecture of microprocessors.
  - c) Draw neat circuit diagram of 4 bit R-2R ladder DAC. Find the output voltage of 4 bit R-2R ladder DAC with digital input of 1011 .Assume logic 0 = 0 volt and logic 1 = 10 volt.
- Q3** Answer **ANY TWO** of the following- **[10]**
- a) Differentiate between synchronous and asynchronous serial communication.
  - b) Explain with neat diagram four level memory hierarchy.
  - c) Explain Von-Neumann and Harvard architecture with neat diagrams.
- Q4** Answer **ANY FIVE** of the following- **[10]**
- a) Define the following parameters for DAC: Accuracy and Resolution.
  - b) Define the terms access time and storage capacity with reference to memory.
  - c) Give any two advantages of successive approximation ADC.
  - d) Define hit ratio. A machine makes 1000 references to memory and 850 times the information is found in the cache. Find the hit ratio.
  - e) What is the meaning of Bus Request (BR) and Bus Grant (BG) with reference to DMA?
  - f) What is the use of address bus and data bus in computer system?
  - g) Explain the function of following registers of Pentium processors
    - (i) Stack pointer
    - (ii) Code Segment