

SE - Sem - IV (BKS) - I.T. 31/05/16  
Computer Organization & Architecture

Q.P. Code : 549802

(3 Hours)

[ Total Marks : 80

- N.B. : (1) Question No .1 is **compulsory**.  
(2) Solve any **three** questions out of remaining **five** questions.  
(3) Assume suitable data if necessary.

1. Solve any **four** out of **five** :- **20**
- (a) Explain the types of microinstruction formats.
  - (b) Draw and explain the flowchart of Add and Shift method of integer multiplication.
  - (c) What the functions of following registers ?  
(i) Z (ii) SP (iii) MAR (iv) MDR (v) Y
  - (d) Compare SRAM and DRAM.
  - (e) With the help of diagram, explain Von-Neumann architecture.
2. (a) Multiply (-9) and (4) using Booth's algorithm. **10**  
(b) Explain different addressing modes with example. **10**
- 3 (a) Express  $(28.75)_{10}$  in the IEEE 754 single and double precision standard of floating point representation. **10**  
(b) Explain design of control unit w.r.t. microprogrammed and hardwired approach. **10**
4. a) Explain different mapping techniques of Cache memory. **10**  
b) Explain Flynn's classification in detail. **10**
- 5 a) Draw and explain six stage instruction pipeline and the various hazards. **10**  
b) What is the need of DMA? Explain its various techniques of data transfer. **10**
6. a) Find out page hit and miss for the following string using FIFO, LRU and OPTIMAL page replacement policies considering a frame size of three. 2, 3, 3, 1, 5, 2, 4, 5, 3, 2, 5, 2. **10**  
b) Divide 15 by 4 using restoring division algorithm. **10**
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