

[36-A]

SARDAR PATEL UNIVERSITY
M.Sc. (Semester I) (CBCS) EXAMINATION 2012
Friday, 7th December 2012

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Computer Architecture and Organization

Time: 10:30 AM TO 1:30 PM
Total Marks: 70

- Q1** Choose the correct answer. [08]
- 1 Which of the following is exact symbolic representation of BSA instruction?
 a) $M[AR] \leftarrow PC, PC \leftarrow AR+1$
 b) $PC \leftarrow AR$
 c) $M[AR] \leftarrow AC$
 d) $AC \leftarrow AR$
 - 2 Which instruction execution occurs for the condition $D_7I'T_3B_8$?
 a) CMA b) CME c) CIR d) SZE
 - 3 Which is not a 16 – bit register?
 a) DR b) AC c) PC d) TR
 - 4 The content of the top of a memory stack is 5320. The content of the stack pointer SP is 3560. A two - word call subroutine instruction is located in memory at address field of 6720 at location 1121. What are the content of the top of the stack after the call instruction is executed?
 a) 1122 b) 6719 c) 5320 d) 3560
 - 5 An instruction is stored at location 300 with its address field at location 301. The address field has the value 400. A processor register *RI* contains number 200. What will be the effective address if the instruction is in relative addressing mode?
 a) 400 b) 301 c) 702 d) 600
 - 6 Content Addressable Memory is better known as _____.
 a) Associative Memory b) Cache Memory
 c) Auxiliary Memory d) Main Memory
 - 7 If IR contains 0110101011000000, what is the type of instruction?
 a) Indirect Memory Reference Instruction.
 b) Direct Memory Reference Instruction.
 c) Register Reference Instruction.
 d) I/O Instruction.
 - 8 Which instruction is initiated for decoder output D_5 ?
 a) AND b) LDA c) BSA d) ISZ

P.T.O

- Q2 Answer in short. [ANY SEVEN]. [14]
- 1 Define: Semaphore
 - 2 Draw the register configuration for decimal division and multiplication operation.
 - 3 Explain BSA instruction
 - 4 Define : UART
 - 5 Define: Auxiliary memory
 - 6 Define: Hit AND Hit Ratio
 - 7 Convert following arithmetic notation from reverse Polish notation to infix notation.
 $ABC * + D - EF / *$
 - 8 Convert the following arithmetic notation from infix notation to reverse Polish notation.
 $A + B - C * (D + E)$
 - 9 Explain locality of reference.
- Q3 A Write a brief note on common bus system. [06]
- Q3 B Explain conditional branch instructions. [06]
- OR
- Q3 B
- 1) Explain shift instructions. [03]
 - 2) Explain different types of interrupts. [03]
- Q4 A Explain memory stack organization. [06]
- Q4 B Draw a flowchart for interrupt cycle. [06]
- OR
- Q4 B Explain CPU – IOP communication. [06]
- Q5 A Write a brief note on address mapping using pages in virtual memory organization. [06]
- Q5 B Show the content of register A, B, Q and SC during the decimal multiplication of 470×105 . [06]
 Assume 3 digit register and take the second number as the multiplier.
- OR
- Q5 B Show the content of register A, B, Q and SC during the decimal division of $1578/24$. [06]
 Assume 2 digit register.
- Q6 A Explain parallel processing. [06]
- Q6 B What do you mean by polling? Explain daisy chaining priority. [06]
- OR
- Q6 B
- 1) Give Flynn's criteria for classification of computer. [03]
 - 2) Explain the memory hierarchy in a basic computer. [03]

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