Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Science

End Sem (Even) Examination May-2018

CA3CO06 Computer Architecture

Programme: BCA Branch/Specialisation: Computer Application

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. Which bus is bidirectional? **1**
(a) Address bus (b) Control bus
(c) Data bus (d) None of these

ii. Memory is an integral part of a _____ system **1**
(a) Supercomputer (b) Microcomputer
(c) Mini computer (d) Mainframe computer

iii. Which is not an operand? **1**
(a) Variable (b) Register (c) Memory location (d) Assembler

iv. Which is not part of the execution unit (EU)? **1**
(a) Arithmetic logic unit (ALU) (b) Clock
(c) General registers (d) Flags

v. The ___ bus controller device decodes the signals to produce the control bus signal **1**
(a) Internal (b) Data (c) External (d) Address

vi. Which method by passes the CPU for certain types of data transfer? **1**
(a) Software interrupts (b) Interrupt-driven I/O
(c) Polled I/O (d) Direct memory access (DMA)

vii. The intel 8086 microprocessor is a _____ processor **1**
(a) 8 bit (b) 16 bit (c) 32 bit (d) 4 bit

viii. Which of the following is not an 8086/8088 general-purpose register? **1**
(a) Code segment (CS) (b) Data segment (DS)
(c) Stack segment (SS) (d) Address segment (AS)

ix. Access time is faster for _____. **1**
(a) ROM (b) SRAM (c) DRAM (d) ERAM

P.T.O.

x. Status register is also called as _____. **1**
(a) Accumulator (b) Stack
(c) Counter (d) Flags

Q.2 i. What is instruction cycle and its phases? **2**

ii. Describe any three different arithmetic instructions with example. **3**

iii. Explain the components of computer system with the help of neat diagram. **5**

OR iv. Compare the instruction set architectures in RISC and CISC processors in terms of instruction set, addressing modes, register files and cache design, clock rate and CPI. **5**

Q.3 i. Write short note on register configuration for floating-point arithmetic operations. **4**

ii. Describe the algorithm for division of two fixed point binary numbers in signed magnitude representation. **6**

OR iii. Explain with an example the procedure for the signed 2's complement system for decimal numbers. **6**

Q.4 i. Write the brief note on bus organization of basic computer system. **3**

ii. What is control unit? Explain its functions. Explain how micro Programmed control unit is different from hardwired control unit. **7**

OR iii. How transfer of data from CPU to an interface and then to an I/O devices are carried out? Explain with block diagram. **7**

Q.5 i. Enlist the addressing modes of 8086 micro processors. **3**

ii. Write an assembly language program to subtract two 16 bit numbers. **7**

OR iii. Draw and explain the pin diagram of 8086 micro processor. **7**

Q.6 Write short note on : (Any two)

i. Memory hierarchy **5**

ii. Auxiliary memory **5**

iii. Associative memory **5**

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Marking Scheme
CA3CO06 Computer Architecture

Q.1	i.	Which bus is bidirectional? (c) Data bus		**1**
	ii.	Memory is an integral part of a _____ system (b) Microcomputer		**1**
	iii.	Which is not an operand? (d) Assembler		**1**
	iv.	Which is not part of the execution unit (EU)? (b) Clock		**1**
	v.	The ___ bus controller device decodes the signals to produce the control bus signal (c) External		**1**
	vi.	Which method bypasses the CPU for certain types of data transfer? (d) Direct memory access (DMA)		**1**
	vii.	The intel 8086 microprocessor is a _____ processor (b) 16 bit		**1**
	viii.	Which of the following is not an 8086/8088 general-purpose register? (d) Address segment (AS)		**1**
	ix.	Access time is faster for _____. (b) SRAM		**1**
	x.	Status register is also called as _____. (d) Flags		**1**
Q.2	i.	Definition-instruction cycle Its phases	1 mark 1 mark	**2**
	ii.	Description of arithmetic instructions with example 1 mark for each	 (1 mark * 3)	**3**
	iii.	Explanation for components of computer system Neat diagram	3 marks 2 marks	**5**
OR	iv.	Comparison of RISC and CISC processors in terms of instruction set, addressing modes, register files and cache design, clock rate and CPI. 1 mark for each point	 (1 mark * 5)	**5**
Q.3	i.	Short note on register configuration for floating-point arithmetic operations Description Example	 3 marks 1 mark	**4**
	ii.	Algorithm		**6**
OR	iii.	Explanation of procedure Example-	4 marks 2 marks	**6**
Q.4	i.	Detail of bus organization Diagram	1.5 marks 1.5 marks	**3**
	ii.	Control unit its functions Difference b/w micro Programmed control unit and hardwired control unit	2 marks 2 marks 3 marks	**7**
OR	iii.	Explanation Block diagram	4 marks 3 marks	**7**
Q.5	i.	Addressing modes of 8086 micro processors min. 3 modes	 (1 mark * 3)	**3**
	ii.	Assembly language program to substract two 16 bit numbers Logic Steps-	 3 marks 4 marks	**7**
OR	iii.	Draw and explanation of pin diagram of 8086 micro processor. Diagram Explanation	 3 marks 4 marks	**7**
Q.6		Write short note on : (Any two)		
	i.	Memory hierarchy		**5**
	ii.	Auxiliary memory		**5**
	iii.	Associative memory		**5**

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