

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA SEM-I Examination- Jan.-2012

Subject code: 610004**Date: 05/01/2012****Subject Name: Fundamentals of Computer Organization (FCO)****Time: 10.30 am-1.00 pm****Total marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) i.) Subtract 25 from 14 using 2's complement arithmetic. **04**
 ii.) Convert $(247.68)_{10}$ into Binary, Octal and Hexadecimal. **03**
- (b) Perform $13 * 5$ and show the contents of the registers in each step. **07**
- Q.2** (a) What is a flip-flop? Explain RS Master Slave flip-flop. **07**
- (b) i.) Reduce $\overline{A}BC + B + B\overline{D} + A\overline{B}\overline{D} + \overline{A}C$ Using Boolean laws and implement them using logic gates. **04**
 ii.) Why 8 bit is equal to 1 byte? Comment. **03**
- OR**
- (b) i.) What is cyclic code? Convert $(AF)_{16}$ into GRAY code. **03**
 ii.) Explain 7 bit Hamming code for error correction. Encode 0011 into 7-bit even-parity Hamming code. **04**
- Q.3** (a) Design a JK counter which will count the sequence 2,4,5,7 and repeat. **07**
 (b) Reduce the expression $\sum m(1, 5, 6, 12, 13, 14) + d(2, 4)$ to the simplest possible POS form and implement them using universal logic. **07**
- OR**
- Q.3** (a) Design a RS counter which will count the sequence 3,4,6,7 and repeat. **07**
 (b) Make a K-map of the following expression and obtain the minimal SOP form. Implement them using universal logic. **07**
- $AB + A\overline{C} + C + AD + \overline{A}BC + ABC$
- Q.4** (a) What is instruction format? Explain different types of instruction format. **07**
 (b) Write short note on Printer **07**
- OR**
- Q.4** (a) What are various modes of data transfer? Explain DMA in detail. **07**
 (b) Explain different addressing modes? Which one is best. **07**
- Q.5** (a) What is a Multiplexer? Explain 4-to-1 line multiplexer. **07**
 (b) Explain RAM and types of RAM? Which one do you select & why? **07**
- OR**
- Q.5** (a) What is a Decoder? Explain 2-to-4 line Decoder using NAND gates. **07**
 (b) Explain ROM and types of ROM? Explain their applications **07**

GUJARAT TECHNOLOGICAL UNIVERSITY**MCA- Ist SEMESTER-EXAMINATION – MAY/JUNE - 2012****Subject code: 610004****Date: 01/06/2012****Subject Name: Fundamentals of Computer Organization****Time: 02:30 pm – 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1**
- (a)
- i. $(542.24)_8 - (655.52)_8$ (Use 7's Complement Method) **02**
 - ii. Given that $(37)_{10} = (101)_b$. Find the value of b. **01**
 - iii. Convert $(172)_8$ to GRAY code. **02**
 - iv. Perform $255 - 473$ in XS - 3 code. **02**
- (b)
- i. Add $1010.11 + 1101.10 + 1001.11 + 1111.11$ **01**
 - ii. Convert $(587.75)_{10}$ to $()_8$, $()_2$, $()_{16}$. **02**
 - iii. Demorganize $((AB)' + A' + AB)'$. **02**
 - iv. What is a BCD code? What are its advantages & disadvantages? **02**
- Q.2**
- (a)
- i. Prove $A + BC = (A+B)(A+C)$. (Use Boolean laws) **02**
 - ii. What is RAM? Differentiate different types of RAM. **02**
 - iii. Find the values of binary variables A,B,C,D by solving the set of Following Simultaneous equations. **03**
 $A' + AB = 0$; $AB = AC$; $AB + AC' + CD = C'D$
- (b)
- i. When a Karnaugh map has four rows or columns, they are numbered 00, 01, 11, and 10 instead of 00, 01, 10, and 11. Why? **02**
 - ii. Reduce the expression $A(B+C')(A+B')(B+C+D')$ using K – Map to find the minterms. Implement them in Universal logic. **05**

OR

- (b) A lawn sprinkling system is controlled automatically by certain combinations of the following variables. **07**

Season (S = 1, if Summer; otherwise S = 0)

Moisture Content of Soil (M=1, if high; 0 if low)

Outside Temperature (T = 1, if high; 0 if low)

Outside Humidity (H = 1, if high; 0 if low)

The Sprinkler is turned on under any of the following circumstances.

1. The moisture content is low in winter.
2. The temperature is high and the moisture content is low in summer.
3. The temperature is high and the humidity is high in summer.
4. The temperature is low and the moisture content is low in summer.
5. The temperature is high and the humidity is low.

Use a K – map to find the simplest possible logic expression involving the variables S,M,T,H for turning ON the sprinkler system. Implement them using Universal logic.

- Q.3** (a) i. What is a master – slave flip-flop? Discuss its working. **03**
 ii. Explain 4-bit transfer circuit. Where it is used? **04**
 (b) Design a counter using J-K flip flop which counts the sequence 0,1,2,4,0,..... and repeat. **07**
- OR**
- Q.3** (a) i. What is a latch? Explain D-latch using its waveform. **03**
 ii. Explain 3-bit binary counter in detail. **04**
 (b) Design a counter using R-S flip flop which counts the sequence 0,1,2,4,0,..... and repeat. **07**
- Q.4** (a) i. Explain Half Adder. Design using NOR gate. **03**
 ii. What is Cache memory and Virtual memory. **02**
 iii. What is cycle stealing? **02**
 (b) i. What are different modes of data transfer? Explain Programmed I/O mode in detail. **05**
 ii. What is program Counter? **02**
- OR**
- Q.4** (a) i. Explain bootstrap Loader. **02**
 ii. A computer system requires memory capacity of 2048 bytes. **05**
 a.) How many 128 x 8 RAM chips are needed to provide 2048 bytes.
 b.) How many lines of the address bus must be used to access 2048 bytes of memory? How many of these lines will be common to all chips?
 c.) How many lines must be decoded for chip select? Specify the size of decoders.
 (b) i. Explain Handshaking protocol in detail. **05**
 ii. What is an instruction format? Explain its parts and significance. **02**
- Q.5** (a) What is a multiplexer? Explain 4 to 1 line multiplexer. **07**
 Construct a 16 to 1 line multiplexer with two 8 to 1 line multiplexer and one 2 to 1 line multiplexer. (use block diagrams of multiplexer)
 (b) Write a short note on Printer and its types. **07**
- OR**
- Q.5** (a) Write a note on display units. **07**
 (b) What is a decoder? Explain 3 to 8 line decoder. How we can construct 3 x 8 decoder with two 2 x 4 decoder. (use block diagrams of decoder) **07**

GUJARAT TECHNOLOGICAL UNIVERSITY**MCA. Sem-I Remedial Examination April 2010****Subject code: 610004****Subject Name: Fundamentals of Computer Organization****Date: 07 / 04 / 2010****Time: 12.00 noon – 02.30 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** Write the following: **14**
- [a] Convert the hexadecimal number 657 to binary and octal number.
- [b] Perform the arithmetic operations (+32) - (-13) in binary using signed-2's complement.
- [c] Represent decimal number 3256 in BCD and excess-3 gray code.
- [d] Prove by perfect induction $A + \overline{AB} = A + B$
- [e] List X-OR gate applications.
- [f] Perform the subtraction with unsigned decimal numbers by taking the 10's complement: 8567 - 2451
- [g] Detect and correct errors in the even parity hamming code word 001001001010
- Q.2** [a] Explain the concept of Master Slave Flip-Flop with Diagram. **07**
- [b] Reduce following expression using K-map and write SOP and POS form of Reduced expression. Draw circuit using Universal Gate. **07**
- $f = \sum m(0, 2, 8, 9, 10, 11) + d(1, 3)$
- OR**
- [b] Write short note on universal gates with circuit and truth table. **07**
- Q.3** [a] Explain Up-Down counters with example. **07**
- [b] Explain BCD counter with example. **07**
- OR**
- Q.3** [a] Explain 4-bit shift register with example. **07**
- [b] Design a counter, using three JK flip-flops X, Y, and Z, which counts as 0, 7, 3, 2, 5, repeat **07**
- Q.4** [a] Explain BCD adder with example. **07**
- [b] Explain how to divide 14 by 4 in the registers and showing how the quotient and remainder are placed after the division. (all are 5 bit registers) **07**
- OR**
- Q.4** [a] Draw circuit of parallel addition and subtraction. Explain circuit by adds and subtracts +7 and -4. **07**
- [b] Explain how to multiply 7*9 in the registers. (all are 5 bit registers) **07**
- Q.5** Explain the following:
- [a] Write short note on addressing modes. **03**
- [b] Write short note on DMA. **03**
- [c] Explain Cache Memory and Virtual Memory. **03**
- [d] Explain different types of ROMs. **02**
- [e] Explain Octal-to-Binary encoder. **03**
- OR**
- Q.5** Explain the following:
- [a] Write short note on instruction formats **03**
- [b] Write short note on modes of Transfer. **03**
- [c] Explain Random Access Memory. **02**
- [d] Write short note on peripheral devices. **03**
- [e] Explain 3-to-8 decoder. **03**

GUJARAT TECHNOLOGICAL UNIVERSITYM. C. A. Semester - IST Examination –July- 2011

Subject code: 610004

Subject Name: Fundamentals of Computer Organization

Date: 11/07/2011

Time: 02:30 pm – 05:00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)**
1. Simplify the following expression using Boolean Algebra: $AB + A(CD + CD')$ **01**
 2. List the truth table of the function: **02**
 $F = xy'z + x'y' + xy$
 3. Determine by means of a truth table the validity of DeMorgan's theorem for three variables: **02**
 $(ABC)' = A' + B' + C'$
 4. Draw K-map for:
 - a. $m_0 + m_1 + m_4 + m_7$ (K-map in X,Y,Z) **01**
 - b. $m_2 + m_3 + m_5 + m_6 + m_7 + m_9 + m_{11} + m_{13}$ (K-map in A,B,C,D) **01**
- (b)** Perform the following operations:
1. $11011 - 11001$ (Using 2's complement) **01**
 2. Represent decimal number 1246 in BCD format. **01**
 3. Convert the hexadecimal number AB4 to binary and octal **02**
 4. Write the first 12 numbers in the base 4 number system. **01**
 5. Perform $1101.11 * 11.1$ **01**
 6. Perform $11001 \div 101$ **01**
- Q.2 (a)**
1. Give characteristic table and the circuit diagram for RS Flip Flop. **03**
 2. Write a short note various addressing modes **04**
- (b)**
1. Write a short note on Read Only Memory **03**
 2. Explain the various peripheral devices **04**
- OR**
- (b)**
1. Write a short note on Random Access Memory **03**
 2. Explain in detail printers **04**
- Q.3 (a)** Briefly explain the working of Half-Adder and Full-Adder along with the circuit diagrams. **07**
- (b)** Write a short account on 4 X 1 Multiplexer **07**
- OR**
- Q.3 (a)** Write a short note on Parallel Binary Adder **07**
- (b)** Write a short account on 3 to 8 Decoder **07**
- Q.4 (a)** Design a counter using JK Flip Flop which counts 0,7,3,2,5 repeat **07**
- (b)** Simplify the Boolean function in sum-of-products form by means of a 4-variable map. Draw the logic diagram with (a) AND-OR gates (b) NAND-NAND gates **07**
 $F(A,B,C,D) = \sum (0,2,8,9,10,11,14,15)$

OR

- Q.4 (a)** Design a counter using RS Flip Flop which counts 0,2,4,6,7 repeat **07**
(b) Simplify the Boolean function in product-of-sums form by means of a 4-**07**
variable map. Draw the logic diagram with (a) OR-AND gates (b) NOR-
NOR gates
 $F(W,X,Y,Z) = \sum(2,3,4,5,6,7,11,14,15)$

- Q.5 (a)** Explain how to divide 13 by 3 in the registers and showing how the quotient **07**
and remainder are placed after the division. (all are 5 bit registers)
(b) Explain Binary up and down counter. **07**

OR

- Q.5 (a)** Explain Binary Coded Decimal Adder **07**
(b) Explain how to multiply 1001 with 1101 in the register. (All are 5 bit **07**
registers.)

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA SEM-I Examination- Jan.-2012

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ii.) Convert $(247.68)_{10}$ into Binary, Octal and Hexadecimal. **03**
- (b) Perform $13 * 5$ and show the contents of the registers in each step. **07**
- Q.2** (a) What is a flip-flop? Explain RS Master Slave flip-flop. **07**
- (b) i.) Reduce $\overline{A}BC + B + B\overline{D} + A\overline{B}\overline{D} + \overline{A}C$ Using Boolean laws and implement them using logic gates. **04**
ii.) Why 8 bit is equal to 1 byte? Comment. **03**
- OR**
- (b) i.) What is cyclic code? Convert $(AF)_{16}$ into GRAY code. **03**
ii.) Explain 7 bit Hamming code for error correction. Encode 0011 into 7-bit even-parity Hamming code. **04**
- Q.3** (a) Design a JK counter which will count the sequence 2,4,5,7 and repeat. **07**
(b) Reduce the expression $\sum m(1, 5, 6, 12, 13, 14) + d(2, 4)$ to the simplest possible POS form and implement them using universal logic. **07**
- OR**
- Q.3** (a) Design a RS counter which will count the sequence 3,4,6,7 and repeat. **07**
(b) Make a K-map of the following expression and obtain the minimal SOP form. Implement them using universal logic. **07**
- $$AB + A\overline{C} + C + AD + \overline{A}BC + ABC$$
- Q.4** (a) What is instruction format? Explain different types of instruction format. **07**
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- OR**
- Q.4** (a) What are various modes of data transfer? Explain DMA in detail. **07**
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- Q.5** (a) What is a Multiplexer? Explain 4-to-1 line multiplexer. **07**
(b) Explain RAM and types of RAM? Which one do you select & why? **07**
- OR**
- Q.5** (a) What is a Decoder? Explain 2-to-4 line Decoder using NAND gates. **07**
(b) Explain ROM and types of ROM? Explain their applications **07**

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA. Sem- IST Regular / Remedial Examination January-February 2011

Subject code: 610004

Subject Name: Fundamentals of Computer Organization

Date: 01 / 02 / 2011

Time: 10.30 am – 01.00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a) Do as directed: 01**
- i. $(110111.1)_2 / (101)_2 = (\quad)_2$.
 - ii. $(BC70.0E)_{16} = (\quad)_8$. **01**
 - iii. $46 - 84 = \quad$. **01**
(Use 12-bit 1's Complement method)
 - iv. $(1101101101101.101101)_2 = (\quad)_{16}$. **01**
 - v. Convert binary number 110110110 to its equivalent grey code. **01**
 - vi. Convert grey code 100011101 to its equivalent binary number. **01**
 - vii. For the given message code 1110111, detect & correct using 7-bit even-parity hamming code. **01**
- (b) Do as directed: 01**
- i. Convert 4228.5 to its equivalent 8421 BCD code.
 - ii. Convert given binary number 011101110111.0111 to its equivalent XS-3 code. **01**
 - iii. Simplify the given Boolean expression: $AB'C + A'BC + ABC$ **01**
 - iv. De Morganize the given Boolean expression: $[((A+B)' \cdot (C+D)') \cdot ((E+F)' \cdot (G+H)')]'$ **01**
 - v. Draw the block diagram of digital computer. State the purpose of each component. **03**
- Q.2 (a) Explain Memory Address Map. 07**
- (b) List various types of printers and explain any one of them. 07**
- OR**
- (b) Explain Visual Display Unit. 07**
- Q.3 (a) Design and explain Full adder circuit. 07**
- (b) i. Which registers are available in DMA controller? State their purpose. 04**
- ii. Why read and write are control lines in a DMA controller bidirectional? 03**
Under what condition and for what purpose are they used as inputs?
Under what condition and for what purpose are they used as outputs?
- OR**
- Q.3 (a) Design and explain BCD adder. 07**
- (b) Explain Handshaking method of Asynchronous Data Transfer. 07**
- Q.4 (a) Write a program to evaluate arithmetic statement: 07**
$$X = ((A*B) + (C*D-E)) / (A+B)$$

- using general register computer with three address instruction format and accumulator type computer with one address instruction format
- (b) Construct a 3×8 decoder using two 2×4 decoder. 07**

OR

- Q.4 (a)** An instruction is stored at location 300 with its address field at location 301, the address field has the value 400. A processor register R1 contains value 200. Evaluate effective address if addressing mode of instruction is :
(a) direct (b) immediate (c) relative (d) register indirect (e) index with R1 as index register. **07**
- (b)** Explain the design of 8-to-1 line Data Selector. **07**

- Q.5 (a)** i. Draw a set of waveforms for S & R and X & X' so that Flip-flop will have output signals 0011010 on output line. **04**
ii. Draw and explain 4-bit shift right register. **03**
- (b)** Do as directed: **01**
- i. Reduce using K-map: $\sum m(5,6,7,9,10,11,13,14,15)$. **01**
- ii. Reduce using K-map: $\sum m(9,10,12)+d(3,5,6,7,11,13,14,15)$ **01**
- iii. Write the dual of given Boolean expression: **01**
 $AB + (AC)' + AB'C(AB+C) = 1$
- iv. Write any one form Absorption law and prove by the method of perfect induction. **02**
- v. Derive a Boolean expression (in SOP form) for a logic circuit that will have a 1 output when X=0, Y=0, Z=1 and X=1, Y=1, Z=0 and a 0 output for all other input states. **02**

OR

- Q.5 (a)** i. Design a 2-bit up counter which goes through states 00,01,10,11 and 00 and so on when external input is 1 and state remains unchanged when external input is 0. **04**
ii. Explain Master-Slave Flip-flop. **03**
- (b)** i. What do you mean by universal gate? Which gates are universal gates? Why? **05**
ii. Derive a Boolean expression (in POS form) for a 3-input gating network that will have outputs 0 when all the 3-inputs are same. The outputs are to be 1 for all other cases. **02**

GUJARAT TECHNOLOGICAL UNIVERSITY**MCA- Ist SEMESTER–EXAMINATION – MAY/JUNE - 2012****Subject code: 2610004****Date: 01/06/2012****Subject Name: Fundamentals of Computer Organization (FCO)****Time: 02:30 pm – 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
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3. Figures to the right indicate full marks.

- Q.1**
- | | | |
|------------|--|-----------|
| (a) | 1. Write the first 12 numbers in the base 4 number system. | 02 |
| | 2. What are the types of complements? Write rules for complement. | 02 |
| | 3. Multiply 1010.101_2 by 110.01_2 | 02 |
| | 4. Subtract 16.47_8 from 20.14_8 | 01 |
| (b) | 1. List De Morgan's theorems. Explain any one. | 02 |
| | 2. Which are the universal gates? Describe any one. | 02 |
| | 3. Describe different methods to represent negative binary numbers. | 02 |
| | 4. Write dual of $AB + \overline{A}(B + \overline{C})(D + \overline{B})$ | 01 |

- Q.2**
- | | | |
|------------|--|-----------|
| (a) | Write short note on basic components of a digital computer. | 07 |
| (b) | Explain X-OR Gate with truth table, circuit, and Boolean expression for two and three input variables. | 07 |

OR

- | | | |
|------------|---|-----------|
| (b) | Write a short note on different categories of Printers. | 07 |
|------------|---|-----------|

- Q.3**
- | | | |
|------------|--|-----------|
| (a) | What is a Counter? Write a note on asynchronous Binary counter with necessary figures. | 07 |
| (b) | $F(X, Y, Z, W) = \sum m(4, 6, 7, 8) + D(2, 5, 11, 12)$ using K-map | 07 |
| | 1. Find SOP expression | |
| | 2. Implement this simplified expression using two level AND-to-OR gate network. | |
| | 3. Implement this expression using NAND gates only. | |

OR

- Q.3**
- | | | |
|------------|--|-----------|
| (a) | What is a flip-flop? Write characteristics of flip-flop. Explain RS flip-flop with waveform. | 07 |
| (b) | Explain basic working and application of Multiplexer in detail. | 07 |

- Q.4**
- | | | |
|------------|---|-----------|
| (a) | Write short note on magnetic disk memories. | 07 |
| (b) | Describe different types of buses. Explain interface of buses with processor, memory and I/O devices. | 07 |

OR

- Q.4**
- | | | |
|------------|--|-----------|
| (a) | Write short note on random-access memories. | 07 |
| (b) | What do you mean by Addressing Techniques? Explain Indirect and Indexed Addressing techniques with an example. | 07 |

- Q.5**
- | | | |
|------------|---|-----------|
| (a) | Explain various parts of EU in 8086. | 07 |
| (b) | Describe two-address and zero-address instruction word formats. | 07 |

OR

- Q.5**
- | | | |
|------------|---|-----------|
| (a) | Draw the block diagram of 8086 and explain queue and segment registers. | 07 |
| (b) | Explain different addressing modes of 8086 with example. | 07 |

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Date: 05/01/2012

Subject Name: Fundamentals of Computer Organization (FCO)

Time: 10.30 am-1.00 pm

Total marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Do as directed :
- i. Perform: $1001.1_2 + 1011.01_2$ 01
 - ii. Perform: $1101.1_2 - 1010.01_2$ 01
 (Without any Complement method)
 - iii. Convert $(512.5)_{10}$ to its equivalent binary number. 01
 - iv. Obtain 2's complement of 0.0111. 01
 - v. Convert $(1001111.0111111)_2$ to its equivalent hex number. 01
 - vi. Convert $(1111.1101)_2$ to its equivalent octal number. 01
 - vii. Convert $(A8.B7)_{16}$ to its equivalent octal number. 01
- (b)** Do as directed :
- i. Logical '+' and '.' obey a mathematical rule called _____ 01
 - ii. Give the truth table for two input AND gate. 01
 - iii. $(1')' =$ _____ 01
 - iv. $X' + XY' =$ _____ 01
 - v. $X(X + Y) =$ _____ 01
 - vi. Dual of $A' + BC =$ _____ 01
 - vii. If all minterms are placed in K-map of any type then it gives _____ simplified expression. 01
- Q.2 (a)**
- i. Write a note on VDU. 06
 - ii. CPU mainly comprises of _____, _____ & _____. 01
- (b)**
- i. For the SR flip flop sequence of output and its complement are $X=110010$ & $X' = 001001$. Draw the square wave forms for S, R inputs and X, X' outputs. 05
 - ii. Perform Subtraction using 1's and 2's complement method : $0.11001 - 0.00100$. 02
- OR**
- (b)**
- i. Explain 3-bit asynchronous binary counter. 05
 - ii. Write the Excess-3 codes for decimal numbers. 02
- Q.3 (a)**
- i. Explain Full adder circuit. 06
 - ii. Natural complement of Excess-3 code gives _____ complement for its decimal equivalent. 01
- (b)**
- i. Write a note on Primary Memory. 06
 - ii. Write basic symbols of duodecimal number system. 01
 (Use alphabets if required.)

OR

Q.3	(a)	i. Explain Multiplexer.	06
		ii. Write basic symbols of quinary number system.	01
	(b)	i. Write a note on magnetic disk memories.	06
		ii. _____ are the weights of BCD numbers.	01
Q.4	(a)	i. Draw Timing signals for synchronous transfer.	03
		ii. Explain Instruction and Execution cycle.	04
	(b)	Write a Boolean Expression (SOP) for a logic circuit that will have a 1 output when $X=0, Y=0, Z=1$ and $X=1, Y=1, Z=0$; a 0 output for all other input states. Draw a logical diagram.	07
OR			
Q.4	(a)	i. Draw Timing signal for asynchronous transfer.	03
		ii. List the basic control registers of digital computer with their purpose.	04
	(b)	Write a Boolean Expression (POS) for a logic circuit that will have a 0 output when $X=Y=Z=0$; $X=1, Y=Z=0$; $X=Y=Z=1$; a 1 output for all other input states. Draw a logical diagram.	07
Q.5	(a)	Give the details of Instruction word formats.	07
	(b)	Draw and discuss the structure of Execution unit.	07
OR			
Q.5	(a)	List all addressing techniques. Explain any 2 with suitable example.	07
	(b)	Explain working of MUL & XOR instructions.	07
