Roll No.....

Total No.of Pages:01

BCA,SEM 2ND , MAY –2014

COMPUTER SYSTEM ARCHITECTURE

Paper Code (BSBC-204)

Paper Id. [B1116]

Time : 03 Hours

Maximum Marks : 60

Instruction to Candidates :

1) **Section – A is Compulsory.**
2) **Attempt any Four questions from Section – B.**

SECTION - A

Q1) **(10 x 2 = 20)**

a) Define Flynn's classification of computers?
b) What are the basic operations that are called out in registers?
c) Define register reference instructions.
d) What is External interrupt?
e) What is the use of I/O interface unit ?
f) List various types pf ports.
g) Discuss advantages of associative memory.
h) Define Direct mapping in context to cache memory.
i) List various characteristics of micro programmed control unit.
j) Define address bus.

SECTION - B

(4 x 10 = 40)

Q2) What is stored program concept? Explain Von neuman architecture in detail.
Q3) Define instructions format and also discuss types of instruction with example.
Q4) Discuss the I/O organization of a computer system and data transfer through handshaking
Q5) What do you mean by control unit? Explain types of control unit in detail.
Q6) Define page replacement. Explain ay two page replacement algorithms with the help of example.
Q7) Explain the following
   a) Memory hierarchy
   b) Mobile Devices Architecture

----------END----------

Roll No. | | | | | | | | | | | |

Total No. of Pages: 01
Total No. of Questions: 07

BCA (Sem.-2nd)

COMPUTER SYSTEM ARCHITECTURE

Subject Code: BSBC-204
Paper ID: [B1116]

Time: 3 Hrs. **Max. Marks: 60**

INSTRUCTIONS TO CANDIDATE:

1. *Section-A is compulsory.*
2. *Section-B Attempt any four questions.*

SECTION-A

10x2=20

Q. 1.

(a) Define parallel processing?
(b) Define RTL?
(c) Give example of two address instruction?
(d) Name some shift micro operation?
(e) Define Interrupt?
(f) What is register set?
(g) Define DMA?
(h) How hit ratio is measured?
(i) Define BUS?
(j) What is register stack?

Section-B

4x10=40

Q. 2. Explain Von Neumann Architecture?
Q. 3. Discuss various types of arithmetic and shift micro operations?
Q. 4. Discuss the various types of address instructions?
Q. 5. Explain the working of 16 bit common bus system?
Q. 6. Explain the working of DMA controller?
Q. 7. Discuss memory hierarchy?

.....END.....

BCA

Roll No. | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 07

BCA (Sem – 2)

COMPUTER SYSTEM ARCHITECTURE

Subject Code : UGCA-1908

M.Code : 77416

Date of Examination : 06-07-22

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

Q1. Write briefly :

a) Define NOR gate.

b) What is meant by Truth Table?

c) What is POS form?

d) What are K-maps?

e) What is meant by full adder?

f) Name two uses of demultiplexer.

g) Define an Encoder.

h) What is CISC?

i) What is meant by register transfer?

j) Differentiate Control bus and Address bus.

SECTION-B

Q2. Generate AND, OR and NOT gates using NOR gates.

Q3. a) Discuss the working of Full Subtractor Circuit.

b) What is meant by Decoder? Explain.

(S3)-450

Q4. What is meant by SR Flip Flop? Explain the race-around condition in detail.

Q5. Explain the Harvard Architecture.

Q6. a) What are register reference instructions? Explain.

b) Explain the working of D-Flip Flop.

Q7. Draw and explain the data movement among registers using common bus.

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(S3)-450

Roll No. | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 07

BCA (Sem – 2)

COMPUTER SYSTEM ARCHITECTURE

Subject Code : UGCA-1908

M.Code : 77416

Date of Examination : 06-07-22

Time : 3 Hrs. Max. Marks : 60

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d) What are K-maps?

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g) Define an Encoder.

h) What is CISC?

i) What is meant by register transfer?

j) Differentiate Control bus and Address bus.

SECTION-B

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Q3. a) Discuss the working of Full Subtractor Circuit.

b) What is meant by Decoder? Explain.

BCA

Q4. What is meant by SR Flip Flop? Explain the race-around condition in detail.

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Total No. of Questions : 07

Total No. of Pages : 02

BCA (Sem.–2)

COMPUTER SYSTEM ARCHITECTURE

Subject Code : UGCA-1908

M.Code : 77416

Date of Examination : 21-11-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. **Write briefly :**

   a) What are the various units of Digital Computer?

   b) Explain AND and NOT gate with example.

   c) What is Bus?

   d) What is Shift register?

   e) What is JK flip flop, explain with example?

   f) What is register?

   g) What are USB interfaces?

   h) What are the various types of operations required for instructions?

   i) What are memory reference instructions?

   j) What are K-Maps?

SECTION-B

2. Differentiate between RISC and CISC Architecture.
3. Draw and explain Full Adder and Full subtractor with example.
4. Explain Implementation of Boolean equations with Multiplexer.
5. Draw and explain D Flip flop and T Flip Flop.
6. Discuss in detail, the basic concepts of instructions and its executions.
7. Explain the three types of Buses in Computer architecture.

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Total No. of Questions : 07

Total No. of Pages : 02

BCA (Sem.–2)

COMPUTER SYSTEM ARCHITECTURE

Subject Code : UGCA/1908

M.Code : 77416

Date of Examination : 11-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. **Write short note on the following :**

   a) Convert the decimal number 156.75 into binary and octal number?

   b) What are don't care conditions?

   c) What is indirect instruction mode? Explain

   d) Explain various modes of data transfer

   e) What is Von Neumann Architecture?

   f) Why DMA have priority over CPU when both request a memory transfer?

   g) What is the difference between de-multiplexer and decoder?

   h) What is zero address instruction? Explain

   i) What is virtual memory? Explain

   j) What is hardware interrupt?

SECTION-B

2. What do you mean by associative memory? Explain the hardware organization of associative memory

3. What is the role of JK flip flop and its advantages over SR flip flop? Use a SR flip flop to obtain JK flip flop and give its truth table

4. What do you mean by Register Transfer Language? Discuss with the help of suitable examples various register transfer operations and micro operations

5. Explain the working of full adder and half adder in detail with the help of truth table, logic diagram and operation table

6. What is control unit? What are the basic functions of control unit? What is the general model of control unit

7. Explain the various characteristics of RISC architecture and also explain how it is different from CISC architecture

   a) Minimize the following expression using K-map

   $$F(w,x,y,z) = \Sigma(4,5,8,12,13,14,15)$$

   b) Represent the decimal number 8620 in i) BCD, ii) Excess-3, iii) 8421 code

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BCA (Sem.–2)

COMPUTER SYSTEM ARCHITECTURE

Subject Code : UGCA-1908

M.Code : 77416

Date of Examination : 13-12-2024

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. **Write briefly:**

   a) What are the various types of Logic gates?

   b) Explain SOP and POS forms.

   c) What is Bus?

   d) What is Multiplexure?

   e) What is D flip flop, explain with example?

   f) What is Decoder?

   g) What is Race around condition in Flip flop?

   h) What is instruction format?

   i) What are I/O instructions?

   j) What is 16 bit common bus?

SECTION-B

2. Explain the implementation of AND, OR and NOT gate with universal gates.
3. Draw and explain Half Adder and Half subtracter with example.
4. Explain Implementation of Boolean equations with Demultiplexer.
5. Draw and explain JK Flip flop and D Flip flop.
6. What is stored program concept-Von Neumann Architecture? Explain.
7. Explain the three types of Buses in Computer architecture.

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Total No. of Questions : 07

Total No. of Pages : 02

BCA (Sem.–2)

COMPUTER SYSTEM ARCHITECTURE

Subject Code : UGCA-1908

M.Code : 77416

Date of Examination : 24-05-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. Write briefly:

a) What is a Universal Gate? Give examples.

b) State and prove De Morgan's theorems.

c) Explain the importance of K-map in Boolean algebra.

d) Define a Half Adder and write its Boolean expression.

e) What is the function of a multiplexer in digital circuits?

f) What are the limitations of RS flip-flop?

g) Write the differences between latches and flip flops?

h) Differentiate between Harvard and Von Neumann architecture.

i) What are Memory Reference Instructions? Give an example.

j) Define Control Bus and Data Bus with their significance.

SECTION-B

2. What are logic gates? Explain different logic gates with their truth tables and diagram.

3. Explain the SOP and POS forms with suitable examples.

4. Explain the working of a Full Adder with a logic diagram and truth table.

5. Discuss the Master-Slave JK Flip-Flop and how it eliminates the race-around condition.

6. Write a detailed note on RISC and CISC Architecture.

7. Explain the 16-bit Common Bus System with a neat diagram.

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