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SARDAR PATEL UNIVERSITY

B. Sc. Information Technology Examination, 4th Semester

Monday, 08th April, 2019

US04CINT01: Computer Organization & Digital Computer Electronic

Time: 10:00 AM to 01:00 PM **Total Marks: 70**

Note: Answer of all the questions (including Multiple Choice Questions) should be written in the provided answer book only

Q:1 Give answers of following Multiple Choice Questions **[10]**

[01] In Octal Number system, base is _____

(A) 2 (B) 8
(C) 10 (D) 16

[02] In Hexadecimal Number system, F stands for _____

(A) 13 (B) 14
(C) 15 (D) None of above

[03] The output unit supplies the converted results to the

(A) Outside world (B) Computer inside
(C) Hard Disk (D) None of above

[04] _____ holds the instruction currently being executed.

(A) Program Counter (B) Instruction Register
(C) Control Register (D) None of above

[05] _____ is a collection of parallel wires for transmitting address, data and control signals.

(A) Transmitter (B) Program Counter
(C) Bus (D) Control Unit

[06] _____ is a register, which points to the next instruction to be fetched for execution.

(A) Program Counter (B) Instruction Register
(C) Control Register (D) None of above

[07] Invert gate has only _____ input and _____ output.

(A) One, One (B) Two, One
(C) One, Two (D) Two, Two

[08] De Morgan's first theorem says that a NOR gate is equivalent to ____

(A) Bubbled OR (B) Bubbled AND
(C) Bubbled NOR (D) Bubbled NAND

[09] In k-map, pair eliminates _____ variable(s) and their complements.

(A) One (B) Two
(C) Three (D) Four

[10] A flip-flop has _____.

(A) One stable state (B) Two stable states
(C) No stable states (D) None of these

Q:2 Answer the following short questions (any Ten) [20]

[01] List the base of Binary, Octal and Hexadecimal number systems.

[02] Explain the conversion of Decimal to Binary method.

[03] Define the terms: Hardware, Software.

[04] What is program counter?

[05] What is instruction register?

[06] What do you mean by processor-level parallelism?

[07] What is logic gate? List all logic gates.

[08] Explain NAND gate in detail.

[09] Explain half adder.

[10] Define encoder and decoder.

[11] What is minterms?

[12] Explain Sum of Product in detail.

Q:3 [A] Draw a block diagram of Basic Organization of a Computer System and explain the functions of the various units. [10]

OR

Q:3 [B] Explain the conversion of Hexadecimal to Decimal with suitable example. [05]

[C] Explain the addition and subtraction of Binary with suitable example. [05]

Q:4 [A] Describe the Hamming code by giving an example. [05]

[B] Explain Pipelining detail. [05]

OR

Q:4 [C] Explain the internal organization of a typical Von – Neumann CPU. [05]

[D] Explain Array Computers in detail. [05]

Q:5 [A] Explain De' Morgan first and second theorem. [05]

[B] Explain Half – Adder with truth table and logic diagram. [05]

OR

Q:5 [C] Explain Associative law in detail. [05]

[D] What is Binary Adder? Explain in detail. [05]

Q:6 [A] What is Multiplexer? Explain 4 X 1 multiplexer in detail. [06]

[B] Explain K – Map for 3 variables with example. [04]

OR

Q:6 [C] Explain D Latches in detail. [06]

[D] Explain Comparator in detail. [04]

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