

SEAT No. \_\_\_\_\_

No. of Printed Pages : 2

[82/A-34]

**SARDAR PATEL UNIVERSITY****B.Sc. (IT) – IV SEMESTER (CBCS)****US04CINT01 : Computer Organization and Digital Computer Electronics**

Date : 10/04/2017

Time : 2:00 PM to 5:00 PM

Max Marks : 70

Q:1 Write answers of following Multiple Choice Questions :

[10]

[01] The base of Octal Number System is \_\_\_\_\_.

- (A) 7 (B) 8  
(C) 9 (D) 10

[02] CPU stands for \_\_\_\_\_.

- (A) Central Processing Unit (B) Control Programming Unit  
(C) Control Processing Unit (D) Common Programming Unit

[03]  $(562)_8 = (\text{_____})_2$ 

- (A) 10101010 (B) 111100000  
(C) 110110010 (D) 101110010

[04] The \_\_\_\_\_ is responsible for fetching instruction from main memory and determining their type.

- (A) Arithmetic Logic Unit (B) Control Unit  
(C) Registers (D) Program Counter

[05] The \_\_\_\_\_ is a register, which points to the next instruction to be fetched for execution.

- (A) Instruction Register (B) Control Register  
(C) Program counter (D) Memory Address Register

[06] Invert Gate has only \_\_\_\_\_ input and \_\_\_\_\_ output.

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

[07] The \_\_\_\_\_ gate has two or more input signals. All inputs must be same to get a high output.

- (A) NAND (B) NOR  
(C) XOR (D) XNOR

[08] A combinational circuit that performs the arithmetic addition of two bits is called \_\_\_\_\_.

- (A) Encoder (B) Decoder  
(C) Half Adder (D) Full Adder

[09] In K-Map, Pair eliminates \_\_\_\_\_ variable(s) and their complements.

- (A) 1 (B) 2  
(C) 3 (D) 4

[10] A Multiplexer has \_\_\_\_\_.

- (A) One Input and One Output (B) One Input and Many Output  
(C) Many Input and One Output (D) Many Input and Many Output

PTO

Q:2 Answer the following short questions : Attempt Any Ten [20]

- [01] What is Hardware? Give examples.
- [02] Perform :  $(735)_8 = ( ? )_2$
- [03] Perform :  $(ACD)_{16} = ( ? )_2$
- [04] What is Instruction Register?
- [05] What is Array Computers?
- [06] What is Instruction-Level Parallelism?
- [07] Explain AND Gate.
- [08] Explain NOR Gate.
- [09] Explain NOT Gate.
- [10] What is Multiplexer?
- [11] What is Decoder?
- [12] What is Minterm?

Q:3 [A] Draw a Block Diagram of Basic Organization of a Computer System. Explain its functional units. [06]

[B] Perform the following conversions : [04]

1.  $(4762)_{10} = ( \quad )_2$       2.  $(5432)_8 = ( \quad )_2$

OR

Q:3 [C] What is Number System? Explain Hexadecimal Number System in detail. [06]

[D] Perform the following conversions : [04]

1.  $(1010)_2 + (1011)_2 = ( \quad )_2$   
 2.  $(1101)_2 - (0110)_2 = ( \quad )_2$

Q:4 [A] Explain the internal organization of a typical Von Neumann Machine. [06]

[B] Explain Hamming Code with example. [04]

OR

Q:4 [C] Explain Pipelining in detail. [06]

[D] Explain Instruction Execution Cycle of a CPU. [04]

Q:5 [A] Explain De-Morgan's First and Second Theorem in detail. [10]

OR

Q:5 [B] Explain Half Adder and Full Adder in detail. [10]

Q:6 [A] Explain 8x1 Multiplexer in detail. [06]

[B] Explain RS Flip Flop. [04]

OR

Q:6 [C] Explain Comparator in detail. [06]

[D] Simplify the following K-Map : [04]

$F(A, B, C, D) = \sum (0, 1, 2, 3, 4, 5, 6, 7, 10, 11, 15)$

—X—  
2