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Sardar Patel University
External Examination (CBCS)B. Sc. IVth Semester (Information Technology)

US04CINT01 : Computer Organization & Digital Computer Electronics

7th April, Thursday - 2016

Time : 10:30 am to 01:30 pm

Total Marks : 70

Q.1 Select an appropriate option.

10

1. In Hexadecimal Number system, base is _____.
(a) 10 (b) 16 (c) 15 (d) None of above
2. ALU stands for
(a) Arithmetic Logic Unit (b) Arithmetic Logic Usage
(c) Arithmetic Logic Unit (d) None of above
3. Computer hardware refers to the _____ parts of a computer.
(a) Logical (b) Physical (c) Data (d) None of these
4. _____ is a collection of parallel wires for transmitting address, data and control signals.
(a) Bus (b) Transmitter (c) Control Unit (d) Program Counter
5. _____ is a register, which points to the next instruction to be fetched for execution.
(a) Instruction Register (b) Program counter
(c) Control Register (d) None of above
6. Invert gate has only _____ input and _____ output.
(a) Two, One (b) One, Two (c) One, One (d) None of these
7. The _____ gate has two or more input signals. All inputs must be same to get a low output.
(a) NOR (b) XNOR (c) NAND (d) XOR
8. A combinational circuit that performs the arithmetic addition of three bits is called _____.
(a) Full Adder (b) Half Adder (c) Binary Adder (d) Decoder
9. In k-map, octets eliminates _____ variable(s) and their complements.
(a) one (b) two (c) three (d) four
10. A flip-flop has _____.
(a) One stable state (b) no stable states
(c) Two stable states (d) none of these

Q.2 Answer the following questions. (Any TEN)

20

1. What is 3-bits grouping conversion method?
2. What are the five basic operations performed by any Computer System?
3. List the functions of output unit.
4. Draw the figure of von-Neumann machine.
5. What do you mean by processor-level parallelism?

6. What is instruction register?
7. What is gate? Explain OR gate with truth table.
8. Explain half adder.
9. Explain XNOR gate in detail.
10. What are minterm and maxterm?
11. Explain Product Of Sum(POS) in detail.
12. Define function of decoder.

- Q.3 [a] Explain the conversion of Binary to Decimal with suitable example. 5
 [b] Explain the addition and subtraction of Binary number with suitable example. 5

OR

- Q.3 [a] Draw a block diagram of Basic Organization of a computer system and explain the functions of the various units. 5
 [b] What is the shortcut method of Octal to Binary conversion? Explain with example. 5

- Q.4 [a] Explain the internal organization of a typical von Neumann CPU. 5
 [b] Explain Multiprocessors. 5

OR

- Q.4 [a] Explain the instruction execution cycle of a CPU. 5
 [b] Describe the Hemming code by giving an example. 5

- Q.5 [a] Explain associative law, distributive law and commutative law. 6
 [b] Explain full adder in detail. 4

OR

- Q.5 [a] Explain De'Morgan's first and second theorem. 6
 [b] Explain 2's complement adder and subtractor in detail. 4

- Q.6 [a] Explain 8x3 encoder in detail. 5
 [b] Explain the RS Latches. 5

OR

- Q.6 [a] What is Multiplexer? Explain 4x1 multiplexer in detail. 5
 [b] Explain K-Map for 4 variable with example. 5

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