Duration :- 2.30 hrs | Y119NC019 | Maximum Marks : 75

Note : 1) All Questions are compulsory.
2) Figures to right indicate marks.

Q.1 **A) Attempt All (Each of 5 marks)** (15)
Multiple choice Questions

i) In Octal number system base is (05)
a) 8 b) 2 c) 10 d) 16

ii) Assembly language is called a _____ programming language.
a) low –level b) High level c) binary d) decimal

iii) The decoded instruction is stored in _____
a) IR b) PC c) Registers d) MDR

iv) One byte is equivalent to _____ bits.
a) 2 b) 6 c) 16 d) 8

v) ASCII code is _____ bit code.
a) 2 b) 5 c) 16 d) 8

B) Fill in the blanks
[Adder, Substractor, Memory buffer register, memory bus register, 5, 4, false, true, AND, NAND]

i) An _____ is a device that can add two binary digits. (05)

ii) MBR stands for _____

iii) The minimum number of selection inputs required for selecting on out of 32 inputs are_____.

iv) The output of AND gate is _____ only when all the inputs are true.

v) _____ gate is universal gate.

C. Short Answer (05)

1) What are shift registers?

2) Define fan-in

3) What is CU?

4) Define sequential circuit

5) What is an interrupt

Q.2. **Answer the following (Any three)** (15)

a) Explain half adder using k-Map reduction technique.

b) What is multiplexer and De-multiplexer

c) Convert binary number to decimal number.
i) 100101
ii) 10001110
iii) 10110101

d) Explain tristate buffers.

e) Explain concept of universal gate.

f) Explain how number system is represented in computer system.

Q.3. **Attempt the following (Any Three)** (15)

a) Define terms: Memory word, word length, address & address space.
b) What is a characteristic of RISC instruction set?
c) What is function call? Explain its use in ISA.
d) What are the different addressing modes?
e) What are the different addressing modes?

Q.4. Attempt the following (Any Three) (15)

a) Describe memory organisation in detail.
b) List & explain with neat diagram main hardware components of processor.
c) What is exception? Explain with example.
d) Explain program controlled I/O.
e) Explain arithmatic, logic & load instructions with example.
f) Explain with diagram conceptual view of the hardware needed for computation.

Q.5. Attempt the following (Any Three) (15)

a) Discuss addressing modes supported by NIOS II processor.
b) Explain implementation of AND, NOT gates using NAND gate.
c) Convert decimal 5432 to binary & hexadecimal form.
d) What is decoder? Explain in details.
e) Explain the use of stacks in computer operations with example.
f) perform with 2'S complement arithmatic :
-34 + 22

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