

(2½ Hours)

Total Marks 75

- NOTE:**
- 1) All questions are compulsory.
 - 2) Figures to the right indicate full marks.
 - 3) Illustrations, in-depth answers and diagrams will be appreciated.
 - 4) Mixing of sub-questions is not allowed.

1. 1) Attempt All Questions.

a) Select correct answer from the following:

- i) The Number of bits in ASCII code are ____.
a) 2 b) 32 c) 16 d) 8
- ii) Which of the following system is digital?
a) Electrical switch b) Electronic counter
c) Mercury Thermometer d) Both a & b
- iii) The program written in our own alphanumeric characters is called ____.
a) Object code b) Executable code
c) Source code d) None of the above
- iv) The duplicate registers are sometimes called as ____.
a) Copy registers b) Shadow registers
c) Mirror registers d) None of the above.
- v) The number of data registers in coldfire processor is ____.
a) 10 b) 5 c) 8 d) 4

b) Fill in the blanks

- i) ____ Mathematician developed rules for manipulating binary variables.
- ii) If one of the input to an OR gate is high its output will be ____.
- iii) The term used for converting alphabets, numbers into binary is ____.
- iv) A K-map of 'n' variables contains ____ cells.
- v) CISC stands for ____.

c) Short answers

- i) What is BCD?
- ii) What is the binary equivalent of decimal 22?
- iii) State any two mnemonic names used in assembly language & their role.
- iv) State the types of machine instructions.
- v) Define exception.

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2. Attempt the following (Any Three) : 15
- Write a note on computer number system.
 - State the basic logic gates. Explain any one.
 - What is the role of shift register? Explain with 4-bit shift register.
 - What is ripple counter? Explain with example.
 - Explain the steps to synthesis finite state machine.
 - What is multiplexer? Explain its use.
3. Attempt the following (Any Three) : 15
- Describe memory organisation in brief.
 - Write a note on CISC instruction set.
 - Which type of addressing mode is useful while dealing with List & arrays? Explain.
 - State & explain the ways of byte address assignment.
 - For following instruction which address mode is used? Explain the operation.
LOAD R1 N1
LOAD R2 N2
ADD R2 R2 R1
 - Write a note on assembly language.
4. Attempt the following (Any Three) : 15
- Write in brief about store instruction.
 - Explain 5 stage organisation of Data Path.
 - Explain hard wired control approach of generating control signal.
 - What is the concept of interrupts? Give example.
 - Explain sequence of actions during branch instruction.
 - Explain program controlled I/O.
5. Attempt the following (Any Three) : 15
- Write note on full adder.
 - With example explain indexed addressing.
 - What are the components of processor?
 - Convert decimal 3521 to binary & octal form.
 - Discuss addressing modes supported by NIOS II processor.
