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Q.P.Code: 12187

(2½ Hours)

[Total Marks: 75]

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

Q.1 Attempt All(Each of 5Marks)

(15M)

- (a) Select appropriate choice from the following:
- i. Which of the following system is analog?
 - a) Electrical switch
 - b) electronic counter
 - c) Mercury Thermometer
 - d) None of the above
 - ii. If one of the input to an OR gate is high its output will be ____
 - a) Medium
 - b) High
 - c) Low
 - d) no output
 - iii. The assembled machine language program is called ____
 - a) Object Code
 - b) Executable code
 - c) Source code
 - d) Master Code
 - iv. One Byte is equivalent to ____ bits.
 - a) 2
 - b) 6
 - c) 16
 - d) 8
 - v. The program written in alphanumeric characters is called ____
 - a) Object Code
 - b) Executable code
 - c) Source code

(b) Fill in the blanks

1. RISC stands for _____
2. If one of the inputs to an OR gate is low its output will be _____
3. The number of inputs to a logic gate is called its _____.
4. In Octal number system base is _____
5. A K-map of n variables contains _____ cells.

(c) Give short answers to following:

- i. What is an interrupt?
- ii. Define Sequential circuit.
- iii. What is parity bit?
- iv. Define fan-in and fan-out.
- v. State the role of ALU.

Q.2 Attempt the following (Any THREE) (Each of 5Marks)

(15M)

- (a) Explain the concept of universal gate.
- (b) State number systems used in computer system. Explain their characteristics.
- (c) Draw the circuit for half adder using K-map reduction technique.
- (d) What is gated S-R latch?
- (e) Explain tristate buffers.
- (f) Draw a neat basic block diagram of computer system.

Q. 3 Attempt the following (Any THREE) (Each of 5Marks) (15M)

- (a) The HLL statement $z=x-y$ when gets compiled what type of machine instructions will get used?
- (b) Explain How memory is used in read/write operations.
- (c) Define terms: Memory word, word length, Address & address space.
- (d) Explain characteristics of RISC instruction set.
- (e) What is pointer? Explain its use in indirection operation.
- (f) Discuss the type of machine instructions.

Q. 4 Attempt the following (Any THREE) (Each of 5Marks) (15)

- (a) Discuss process control registers.
- (b) Discuss the conceptual view required for computing.
- (c) How arithmetic & logic instructions differ from Load? Explain with example.
- (d) With neat diagram explain organisation of instruction fetch section of the processor.
- (e) Explain the concept of exception.
- (f) How data movement & manipulation operations performed using Data Path.

Q. 5 Attempt the following (Any THREE) (Each of 5Marks) (15)

- (a) Explain instruction execution & straight line dsequencing.
- (b) Explain the use of stacks in computer operations with example.
- (c) With respect of RISC style instruction explain the actions involved in execution of Load instruction.
- (d) Convert decimal number 777 to binary & 1111101 binary to decimal form.
- (e) Explain implementation of AND, OR GATES using NOR.