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.

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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 ot 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.