PVP 14

Code: IT4T5

II B.Tech - II Semester – Regular Examinations – May 2016

COMPUTER SYSTEM ARCHITECTURE
(INFORMATION TECHNOLOGY)

Duration: 3 hours Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1)

a) What is register transfer language?
b) What are the different types of Arithmetic Micro-operation?
c) Show the Instruction format of Basic Computer.
d) What is interrupt?
e) How control memory works?
f) Explain indirect register addressing modes.
g) What is the role of Program Control?
h) Define virtual Memory.
i) How the cache memory helps to improve the performance of computer?
j) What is the advantage of data transfer using DMA?
k) What is the throughput of Pipeline processor?

PART – B

Answer any *THREE* questions. All questions carry equal marks.

3 x 16 = 48 M

2)

a) What is a shift micro-operation? Explain the different types of shift micro-operations. 8 M

b) A logic network has two data inputs A and B, and two control inputs C_0 and C_1. It implements the Function, F according to the following table. Design a circuit using one 4 X 1 Multiplexer, one 2-input Exclusive-OR gate, one 2-input AND gate, one 2- input OR gate and one Inverter. 8 M

C_0	C_1	F
0	0	$\overline{A+B}$
0	1	$A+B$
1	0	$A \oplus B$
1	1	AB

3)

a) How the basic computer instructions are categorized into groups? Explain it using instruction format bits. 8 M

b) Explain in detail about basic computer Timing and Control design. 8 M

4)

a) What is the difference between a microprocessor and a micro program? Is it possible to design a microprocessor without a micro program? 8 M

b) Explain stack organization of Basic computer, and state the names of different addressing modes. 8 M

5)

a) Show the step by step multiplication process using Booth algorithm. When the following binary numbers are multiplied. Assume 5-bit registers that holds signed numbers: (+15) X (+13). 8 M

b) What are the attributes used in design of Memory hierarchy? Show the graphical memory hierarchy organization. 8 M

6)

a) What is the need for DMA? Explain the working of DMA. Also mention its advantages. 8 M

b) What is Pipelining? Explain the handling of branch instructions in pipelining Environment. 8 M