year

Bachelor of Computer Applications
Annual Examinations – 2006

Paper BCAD –301
Computer System Architecture

Time allowed: Three hours Maximum Marks: 100

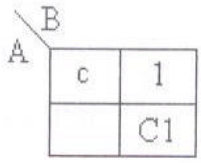
Question no.1 is compulsory. Attempt any 5 questions out of remaining 8 questions.
Total questions to be attempted in total are six.

Marks

1 a) Briefly explain the various components of a personal computer. 05

b) Distinguish between combinational and sequential circuits with the help of suitable example. 05

c) Simplify the expression given in the following K – map to minimum literals 05



d) Design and implement circuit of Full adder 05

e) Write the excitation tables of the following flip flops 05

1) J – K 2) S – R 3) D 4) T

f) What is microoperation? Explain with the help of suitable example. 05

g) Explain the basic concept of addressing mode with the help of suitable example 05

h) i) Explain the basic concept of demand paging with the help of suitable example 03
ii) What is the significance of Input – Output Interface? 02

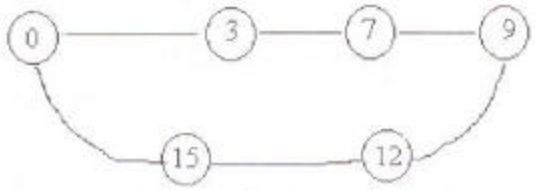
2. Explain the various modes of data transfer with the help of suitable diagram 12

3. Write technical note on the followings 2X6
i) Associate memory
ii) Cache Memory

4. a) What is an interrupt? Explain the various types of interrupts. 2X6
b) Explain the various addressing modes with the help of suitable example.

5. a) What is register? Explain the different types of registers. 2X6

b) Design and implement a counter (syndronous) to count the following sequence



6. a) Design and implement a combinational circuit for performing the following functions 6

C	Function
0	A + B
1	A - B

where C is a control signal of 1 bit and A and B are n bit register.

b) Design and implement a combinational circuit for performing the followings: 2X3

i) Converting Binary to grey code.
ii) Parity Generation and checking.

7. a) Distinguish between RISC and CISC computer. 3X4

b) Distinguish between segmentation and paging

c) Distinguish between SOP and POS forums in simplification of Boolean expression.

8. a) Simplify the following functions using K – map in SOP form 5

$F(V, W, X, Y, Z) = \sum(2, 3, 6, 7, 10, 12, 13, 14, 22, 28, 30)$

b) Simplify the following functions into product of sum form 4

$F(A,B,C,D) = \sum (0,7,8,10,12)$

$D = \sum(2, 6, 11)$

where D is a function of Don't care.

c) Distinguish between Multiplexer and Demultiplexer. 3