OR

(a) Simplify the Boolean functions:

$F(x, y, z, w) = \Sigma(5, 7, 13, 15)$

(b) What is the difference between Combinational and Sequential Circuits? Give examples of both.

Unit-III

Q-3.(a) What are the different types of Registers available with a Microprocessor?

(b) What is Program Counter? Explain its use.

OR

(a) With the help of a block diagram explain the organization of a CPU.

(b) What is a System Bus? Explain its use.

Unit-IV

Q-4.(a) Explain the difference between synchronous and asynchronous data transfer.

(b) What are the functions of a device controller?

OR

(a) What do you mean by Handshaking?

(b) Explain the different I/O interfaces.

Unit-V

Q-5.(a) What is the advantage of having a Cache memory in a processor? What is Hit Ratio?

(b) Explain the memory hierarchy of a modern computer system and comment upon the speed, capacity and cost of the various levels in the hierarchy.

OR

(a) What do you mean by Virtual memory? What do you mean by address mapping in virtual memory?

(b) What are the various page replacement techniques?

Code No. : B-422(A)

Annual Examination - 2017

Class -BCA III

BCA-301

COMPUTER SYSTEM ARCHITECTURE

Max.Marks : 50

Time : 3 Hrs.

Min.Marks : 20

Note : Attempt one question from each unit. All questions carry equal marks.

Unit-I

Q-1.(a) What do you mean by a Number System? Explain the binary number system in deatil.

(b) What do you mean by 1's and 2's complement in binary number system?

OR

(a) Explain Excess-3 and BCD Code with example.

(b) Perform the following conversion :

   i. Convert $(110011)_2$ to Octal

   ii. Convert $(23)_8$ to Binary

   iii. Convert $(A3D)_{16}$ to Octal

   iv. Convert $(1101\ 0011\ 1001\ 1111)_2$ to Hexadecimal

   v. Convert $(65)_{10}$ to Hexadecimal

Unit-II

Q-2.(a) Explain AND, OR, NOR and XOR logic gates. Draw their symbols and truth tables.

(b) What are Flip-Flops? Explain the working of RS flip flop.

P.T.O.