INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY DELHI

QUIZ 3

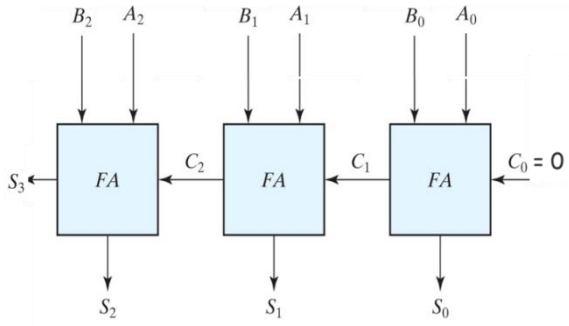
ECE 111 DIGITAL CIRCUITS

Date: March 14, 2022. Time: 8:00 – 8:20 PM. Max. Marks: 10

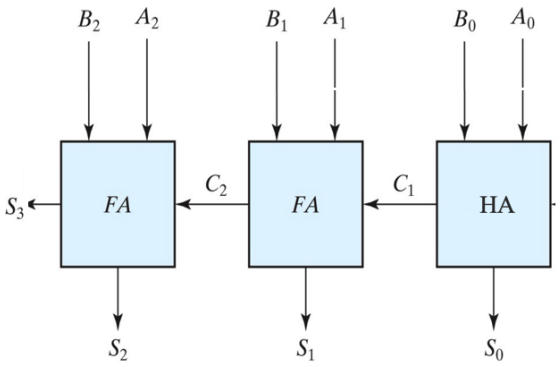
ANSWER ALL QUESTIONS

1. A 3-bit offset binary code is given by the equivalence: −4 = 000, −3 = 001, −2 = 010, −1 = 011, 0 = 100, +1 = 101, +2 = 110, +3 = 111. This scheme is used in Analog to Digital and Digital to Analog conversions. Give an approach to design an adder that adds two 3-bit offset-binary numbers and gives the 4-bit result in the 4-bit offset-binary format.

Use a three-bit full adder two 3-bit offset-binary numbers. The three sum bits along with the final carry bit gives the 4-bit offset-binary number.




or




The students can use three FAs with C0 = 0 or two FAs and one HA. The final carry out is the MSB of the result.