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|  | **King Saud University**  **College of Computer and Information Sciences**  **Department of Computer Science** |

**CSC 220: Computer Organization**

**Lab Project**

**Project Description:** The aim of this project is to design the **8-bit** Function Unit Combining Arithmetic Logic Unit (ALU) and a Shifter that can perform the operations given in table 1 below.

1. Use X and Y as 8 bits input and F as 8 bits output as shown in Figure 1.
2. S0,S1,S2 and S3 represent the selction code in the operation set table
3. Three statue bits V (over flow), C (carry), N (negative) and are related to arrithmatic operations and statue bit Z (zero) is relataed to both arrithmatic and logic operation.
4. Test your designed Function Unit with necessary tables.

**Marking:** Total marks for the project is five (5). Each student needs to submit the project and demonestrate it individually.

A

B

Function Unit

(ALU+Shifter)

F

Z

N

C

V

FS

**8**

8

8

4

X

Y

S

G

**Figure 1: Block diagram of 8-bit Function Unit**

 **Table1 : Set of operations**