

**Military Institute of Science and Technology**  
**Department of Computer Science and Engineering**  
**CSE-17B, Level-3, Term-II**  
**CSE-316 (Digital System Design Sessional)**

**Problem-1 (Grp-1 & Grp-10):**

Design a 3-bit combinational logic shifter having following operations.

Operation	Function
$S \leftarrow F$	Transfer
$S \leftarrow \text{shr } F$	Logical shift right
$S \leftarrow \text{shl } F$	Logical shift left
$S \leftarrow \text{all } 0\text{'s}$	Transfer 0's
$S \leftarrow \text{all } 1\text{'s}$	Transfer 1's

**Problem-2 (Grp-2 & Grp-9):**

Design a 3-bit combinational logic shifter having following operations.

Operation	Function
$S \leftarrow F$	Transfer
$S \leftarrow \text{all } 1\text{'s}$	Transfer 1's
$S \leftarrow \text{shr } F$	Logical shift right
$S \leftarrow \text{cshr } F$	Circular shift right
$S \leftarrow F'$	Complement transfer

**Problem-3 (Grp-3 & Grp-8):**

Design a 3-bit combinational logic shifter having following operations.

Operation	Function
$S \leftarrow F$	Transfer
$S \leftarrow F'$	Complement transfer
$S \leftarrow \text{shl } F$	Logical shift left
$S \leftarrow \text{cshl } F$	Circular shift left
$S \leftarrow \text{all } 0\text{'s}$	Transfer 0's

**Problem-4 (Grp-4 & Grp-7):**

Design a 3-bit combinational logic shifter having following operations.

Operation	Function
$S \leftarrow F$	Transfer
$S \leftarrow \text{shr } F$	Logical shift right
$S \leftarrow \text{shl } F$	Logical shift left
$S \leftarrow \text{cshr } F$	Circular shift right
$S \leftarrow \text{cshl } F$	Circular shift left

**Problem-5 (Grp-5 & Grp-6):**

Design a 3-bit combinational logic shifter having following operations.

Operation	Function
$S \leftarrow F$	Transfer
$S \leftarrow \text{cshl } F$	Circular shift left
$S \leftarrow \text{all } 0\text{'s}$	Transfer 0's
$S \leftarrow F'$	Complement transfer
$S \leftarrow \text{all } 1\text{'s}$	Transfer 1's