GNU-ICT CO (2CSE205)

Assignment – 1

1. Give the difference between Von Neumann architecture and Harvard architecture.
2. Draw the diagram for Bus system using Three state buffers and a decoder instead of the multiplexers for four bit four registers.
3. Draw the block diagram that implements the following register transfer statements:

   if (x+y=1) then (AC ← DR) else if (z=1) then (AC ← IR)

   where, AC, DR and IR are three 16-bit registers and x, y and z are control variables. Include the logic gates for the control function.
4. The 8-bit registers AR, BR, CR, and DR initially have the following values:

   AR=11110010
   BR=11111111
   CR=10111001
   DR=11101010

   Determine the 8 bit values in each register after execution of the following sequence of micro operation.

$AR \leftarrow AR + BR$	Add BR to AR
$CR \leftarrow CR \wedge DR,\ BR \leftarrow BR + 1$	AND DR to CR, increment BR
$AR \leftarrow AR - CR$	Subtract CR from AR

5. Starting from an initial value of R=10011011, determine the sequence of binary values in Register R after a logic shift-right, followed by a circular shift left, followed by logical shift-left.
6. What is wrong with the following register transfer statements?

   a. xT: $AR \leftarrow \overline{AR}$, $AR \leftarrow 0$
   b. yT: $R1 \leftarrow R2$, $R1 \leftarrow R3$
   c. zT: $PC \leftarrow AR$, $PC \leftarrow PC + 1$

Note: -
-Deadline for submission 18/4/2021
-Write question first then answer it.