



VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD-31
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

INNOVATIVE TEACHING AND LEARNING

BLENDDED LEARNING & SIMULATION BASED

Acad. Year	2023-24	Year	IV year	Semester	VIII
Subject Code	U20PE711EC	Subject name	Global Positioning System	Name of the faculty	Dr. Srilakshmi Aouthu

Title: Generation of Entire 1024 - Chip C/A code for a PRN 05 as vector

Objective: To generate C/A code for a different PRN s

Teacher Role: As a part of hybrid learning, Course material is supplied to students on C/A code generation after face-to-face discussion in the classroom

Student Role: Applying different PRN sequences and generating C/A code for GPS satellites.

% 1602-20-735-137, 1602-20-735-179, 1602-20-735-306, 1602-20-735-167 GPS Activity
% Create Entire 1024 - Chip C/A code for a PRN 05 as vector using Mat lab

```
clc;
clear;
close all;
%G1 polynomial 1+x^3+x^10
m=[0,0,1,0,0,0,0,0,0,1];
n=10; %10-bit reg
g1=ones(1,n);
%G2 polynomial 1+x^2+x^3+x^6+x^8+x^9+x^10
k=[0,1,1,0,0,1,0,1,1,1];
g2=ones(1,n);
L=2^n;
tap=[1,0,0,0,0,0,0,1,0]; %PRN-5(TAP 1&9)
% generate C/A Code sequences:
disp("EPOCH G1 G2 TAP-1&9 C/A code")
for inc=1:L
    q=mod(sum(g1.*m),2);
    g1=[q,g1(1:n-1)];
    w=mod(sum(g2.*k),2);
    prn=mod(sum(g2.*tap),2);
    g2=[w,g2(1:n-1)];
    ca(1,inc)=mod(q+w+prn,2);
    fprintf("%5d %3d %3d %4d %6d\n",inc,q,w,prn,ca(1,inc));
end
```

Result:-

EPOCH	G1	G2	TAP-1&9	CIA code
1	0	0	0	0
2	0	0	1	1
3	0	1	1	0
4	1	0	0	1
5	1	1	1	1
6	1	1	0	0
7	0	0	0	0
8	0	1	1	0