Experiment No. - 12

AIM: **Analyse the effect of load on call blocking probability in GSM network using NetSim Academic.**

Theory:

Each base station has certain fixed number of channel available to carry data traffic. If any new call arrives to base station, it will first check for the availability of a free channel. If a free channel is available, then this free channel is allocated for the call. If there is no free channel, then the call is blocked. Call blocking depends on traffic intensity.

Procedure:

Follow the steps given in the different samples**.**

- Total number of BTS used: 1
- Total number of MSC used: 1
- Connect the devices as shown in figure-1.
- Total number of MS used: vary from 4 to 20 in steps of 2.
- For different samples by adding an application every time and changing
- Source_id and the Destination_id.
- All the MS are placed in the range of BTS A.
- BTS A is connected via Wired ling to MSC B.
- Set Simulation time 100s.
- MSC properties: Uplink BW (890Mhz to 890.2Mhz)

Set the properties by following the tables for each sample.

MSC Properties	
Uplink_Bandwidth_Max	890.2_MHz
BSC Properties : Default	

Application_Properties	Application_1	Application 2
Application		
Application_type	Erlang_call	Erlang_call
Source_Id	3	5
Destination_Id	4	6
Call Detail		
Duration_Distribution	Exponential	Exponential
Call Duration	60	60
Mean Call Interval Time (sec)	10	10
IAT_Distribution	Exponential	Exponential
Packet Size		
Codec	G.711	G.711
Packet Size	33	33
Inter Arrival Time (µs)	20000	20000
Service		
Type	CBR	CBR

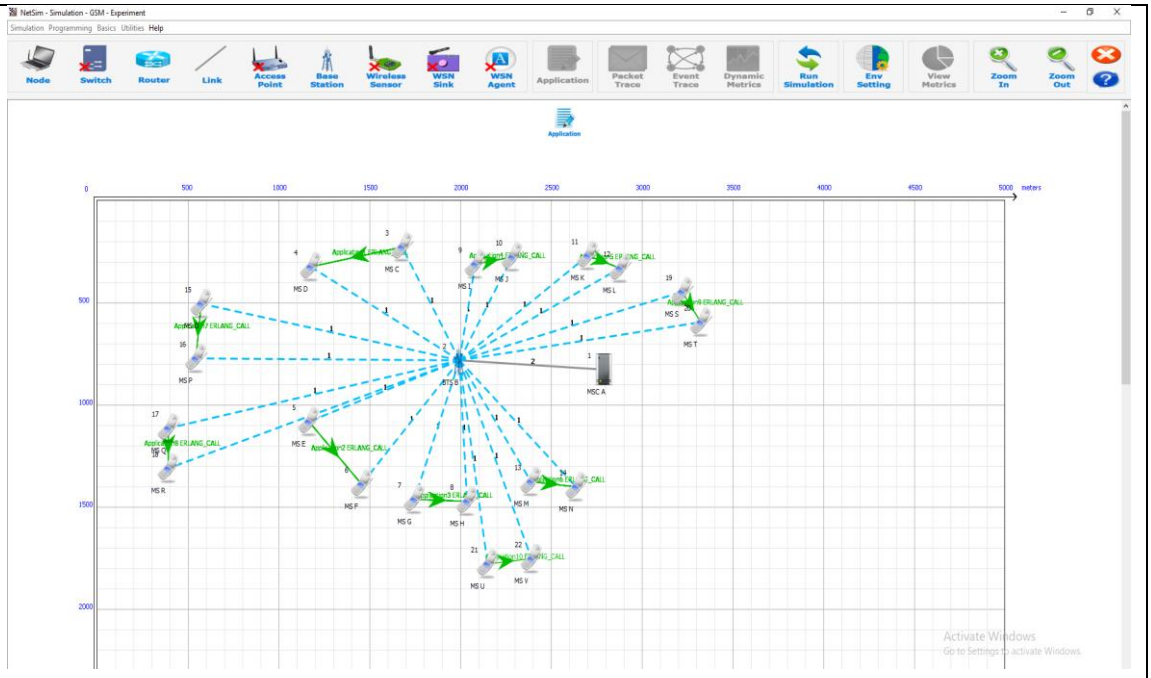

Figure – 1 (GSM network scenario with 20 MS)

- After simulation, go to the cellular metrics.
- In channel metrics, the channel count is mentioned.
- In MS metrics, the call generated, and call blocked is shown for each MS. Add the call blocked for all MS Ids.

Call Blocking Probability= $\frac{\text{Total calls blocked}}{\text{Total calls generated}}$

Observations:

S.No.	Number of MS	Call Blocking Probability
1	4	
2	6	
3	8	
4	10	
5	12	
6	14	
7	16	
8	18	
9	20	

Result analysis and Conclusion:

Post Experiment Questions:	1. Explain features of GSM. 2. Why transmission is discontinuous in GSM. 3. Explain the functions of HLR and VLR.