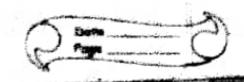
Assignment 1



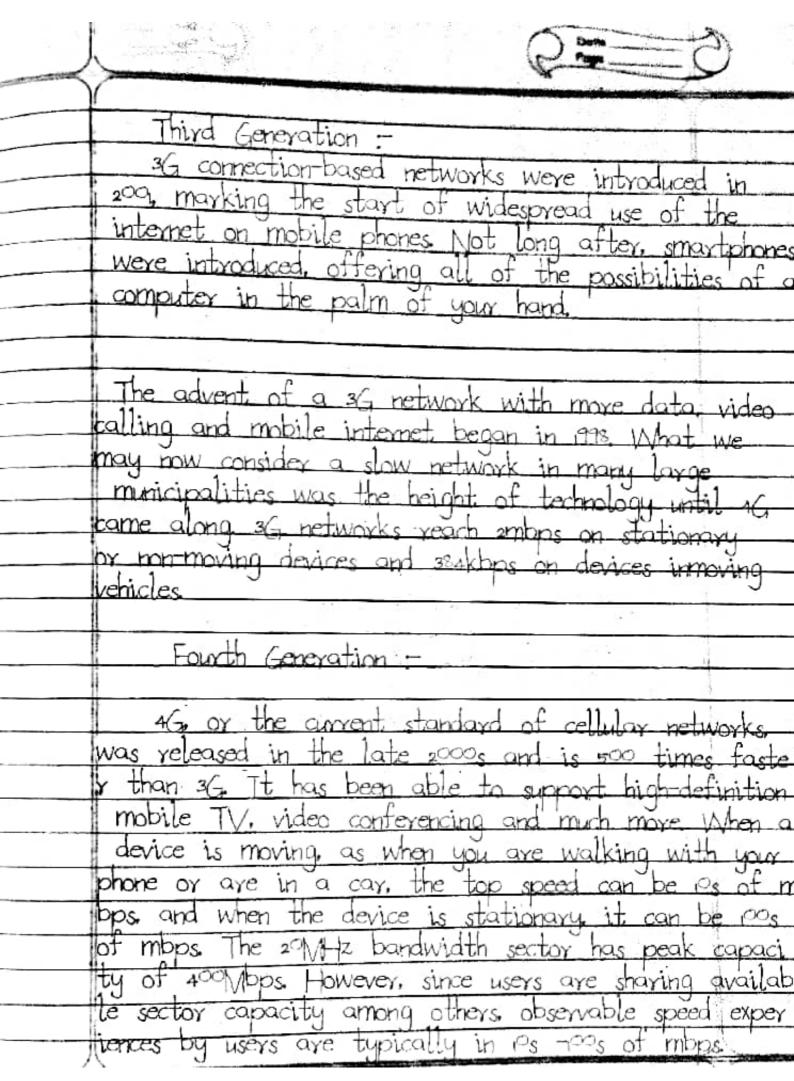
Explain Evolution of Cellular (Mobile Signal) Systems
From G to 5G
During the early 30s, G started to gain popularity
across the globe. During this time, we saw the first
commercial cellular network using analog signals. While
innovative, there were a number of issues with this
first generation. Phones typically had poor battery
life and poor voice quality, with dropped calls

becoming the norm. Phones were also much larger during this time, which made owning and using them

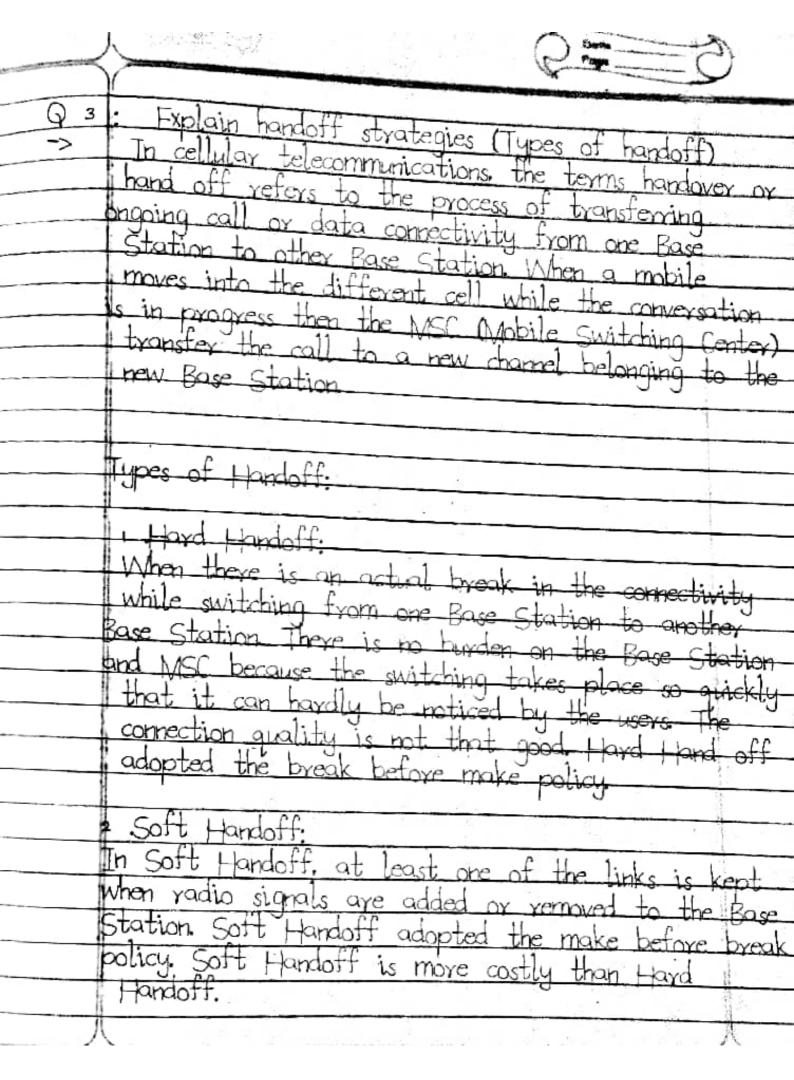
rather inconvenient.

Second Generation:

By the early 1990s. 26 was starting to emerge. This second generation used digital signals instead of analog and included a new digital tool for wiveless transmission called Global System for Mobile (ox GSM), which has been improved upon over the years. The main aim here was to provide a more reliable and secure option for communication. During thi time, features like SMS, conference calls, call hold, internal roaming, and more were introduced and with an increased data rate, the 26 standard could be used to send and receive both text messages and emails.



⇒W	nile the maximum upload rate of 4G technology
-> W	nile the maximum download rate of 4G technology
1 h	nile it uses packet switching technique as well message switching technique.
-	message switching technique. hile it lement horizontally as well as vertically.
	Fifth Generation:
The ger	e next generation of telecom networks (fifth revalion or 5G) has started hitting the market and of 29% and will continue to expand worldwide.
Bel to	unleash a massive 5G ToT (Internet of Thirtys)
rig	ht trade-offs between speed, latency and cost
	to poox speed improvement over 4G and 4.5G
1	MU 4.5(-)



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Q 4	Explain concept of Cell splitting. Sectoring and
Ŷ	Cell Splitting
	When number of subscribers in a given area increases allocation of more channels covered by that channel is necessary, which is done by cell splitting cells is introduced.
	Sectorizing ·
	It is way of increating the capacity of the all
^	In cell sectoring, the omi-directional anterna at the base station are required with several directional anterna, each antenna transmitting within a specified sector
->	sectionization is can expansive that all spetting
	Microcells: Cover a range of hundreds of meters e.g. in urban areas to support PCS which is another kind of mobile lechnology.

Giv	ven bandwidth = 33//hz
Ch	annel bandwidth = 25KHz * 2 simplex channel
To	= 50KHz/duplex channel otal avilarble channel = 5300/50
	=660 channels
	Total Numbers of channel avialible percel = 660/4
	= 65 channel (b) for $n=7$
	total number of channel avilible per cell = 660/7
	(c) for N=2
	Total number of channel avilible per cell = 60/2