Assignment Report: PDP Context & Internet Setup

Objective

To understand how to set up a PDP (Packet Data Protocol) context for enabling mobile internet access on a real GSM/4G modem using AT commands, especially AT+CGDCONT. This process is simulated theoretically since CelerSMS AT Emulator does not support PDP-related functionality.

What is a PDP Context?

A **PDP context** is like an "internet profile" used by cellular modems to:

- Define **how to connect** to the internet.

- Specify the **type of IP connection** (IPv4/IPv6).

- Assign an **Access Point Name (APN)**, which acts like the Wi-Fi gateway for mobile networks.

To access internet over 2G/3G/4G using a SIM card, a PDP context must be configured correctly.

AT+CGDCONT – Configure PDP Context

AT+CGDCONT → Attention + Configure GPRS Data Context

Command Format:

AT+CGDCONT=<cid>,<PDP_type>,<APN>

Parameter Explanation:

<cid>	Context Identifier (usually 1)
<PDP_type>	PDP Type — usually "IP" for standard internet
<APN>	Access Point Name — given by your SIM provider

Example:

AT+CGDCONT=1,"IP","internet"

- Sets **Context ID 1**, **PDP type as IP**, and **APN as "internet"**.

Steps to Set Up Internet on a Real Modem

Step 1: Check Modem Communication

Command : AT
Used to test if the modem is responsive.

Expected Response:

OK

Step 2: Set APN with AT+CGDCONT

Command Format:

AT+CGDCONT=<cid>,<PDP_type>,<APN>

Example:

AT+CGDCONT=1,"IP","airtelgprs.com"

AT+CGDCONT → Configure GPRS Data Context
This tells the modem to use Airtel's APN (airtelgprs.com) for CID 1 with IP-based PDP.

Step 3: Attach to GPRS with AT+CGATT

Command:

AT+CGATT=1

AT+CGATT → Attach to GPRS Service

Explanation:
This command tells the modem to register with the packet-switched network for internet/data.

Step 4: Activate PDP Context using AT+CGACT

Command Format:

AT+CGACT=<state>,<cid>

Example:

AT+CGACT=1,1
AT+CGACT → PDP Context Activate/Deactivate

Explanation:
Activates **CID 1**.

- 1 = Activate

- 0 = Deactivate

 Step 5: Get Assigned IP using AT+CGPADDR

Command:

AT+CGPADDR=1
AT+CGPADDR → PDP Address (Query IP Address)

Explanation:
This command returns the **IP address** assigned to the modem after activation of the PDP context.

(Optional) Step 6: Start TCP/UDP Connections

- Depends on modem brand.

- Uses commands like AT+CIPSTART, AT+QIOPEN, etc., to open internet sockets.

Conclusion

This assignment provides theoretical understanding of configuring a **PDP context** using AT+CGDCONT to enable **internet access** on a real modem. Though the CelerSMS emulator lacks this functionality, the knowledge is essential for working with real modules in IoT and M2M communication where **APN setup and IP-based data transmission** are required.