

**R.M.R Wanigasekara**  
**2014CS150**  
**140001502**

**1. Give a small introduction to AT commands**

**Answer:**

AT commands use to control a modem. AT means Attention. Every instruction in AT starts with "AT or at". Using AT commands we can send messages and we can get basic information about the phone or GSM/GPRS modem.

**2. Why AT commands are important and what are the uses of AT commands?**

**Answer:**

- Get basic information about the mobile phone or GSM/GPRS modem. For example, name of the manufacturer (AT+CGMI), model number (AT+CGMM), IMEI number (International Mobile Equipment Identity) (AT+CGSN), and the software version (AT+CGMR).
- Get basic information about the subscriber. For example, MSISDN (AT+CNUM) and IMSI number (International Mobile Subscriber Identity) (AT+CIMI).
- Get the current status of the mobile phone or GSM/GPRS modem. For example, mobile phone activity status (AT+CPAS), mobile network registration status (AT+CREG), radio signal strength (AT+CSQ), battery charge level, and battery charging status (AT+CBC).
- Establish a data connection or voice connection to a remote modem (ATD, ATA, etc.).
- Send and receive fax (ATD, ATA, AT+F\*).
- Send (AT+CMGS, AT+CMSS), read (AT+CMGR, AT+CMGL), write (AT+CMGW), or delete (AT+CMGD) SMS messages and obtain notifications of newly received SMS messages (AT+CNMI).
- Read (AT+CPBR), write (AT+CPBW), or search (AT+CPBF) phonebook entries.
- Perform security-related tasks, such as opening or closing facility locks (AT+CLCK), checking whether a facility is locked (AT+CLCK), and changing passwords (AT+CPWD). (Facility lock examples: SIM lock [a password must be given to the SIM card every time the mobile phone is switched on] and PH-SIM lock [a certain SIM card is associated with the mobile phone; to use other SIM cards with the mobile phone, a password must be entered.]
- Control the presentation of result codes / error messages of AT commands. For example, you can control whether to enable certain error messages (AT+CMEE), and

whether error messages should be displayed in numeric format or verbose format (AT+CMEE=1 or AT+CMEE=2).

- Get or change the configurations of the mobile phone or GSM/GPRS modem. For example, change the GSM network (AT+COPS), bearer service type (AT+CBST), radio link protocol parameters (AT+CRLP), SMS center address (AT+CSCA), and storage of SMS messages (AT+CPMS).
- Save and restore configurations of the mobile phone or GSM/GPRS modem. For example, save (AT+CSAS) and restore (AT+CRES) settings related to SMS messaging such as the SMS center address.

### **3. What are the main types of AT commands and their differences? Give examples.**

#### **Answers:**

- Basic commands
- Extended commands

Basic commands do not use “+” to start the command. Extended commands use “+” to start the command. All GSM AT commands are extended AT commands.

### **4. How can we know that a specific AT command is working or not?**

#### **Answer**

After typing the command if there is no error and if the command is working it gives an output of ‘OK’.

## 5. "CMS Error 500" what does this error message mean?

### Answer

This error msg occurs when the modem was unable to deliver the message.

Reasons for this message is:

- No network coverage.
- The sending number is invalid.
- GSM cell is overloaded.
- When the SMS service of the service center is out of service.
- Not enough credit in the SIM card.

## 6. What is SMS text mode and PDU SMS mode?

### Answer

SMS text mode

The Short Message Service SMS, as defined within the GSM and UMTS digital mobile phone standard has several unique features:

A single short message can be up to 160 characters (7 bit coded ) or 140 characters (8 bit coded) of text in length. Those 140 / 160 characters can comprise of words or numbers or an alphanumeric combination. Non-text based short messages (for example, in binary format) are also supported. More about that binary mode you will find at the link PDU mode.

SMS PDU mode

Useful in sending compressed data. This system use binary information to send data. It either uses 7 bit or 8 bit to send data. Method can be used if you use a separate encryption to your messages and send them using binary bit streams. Earlier 5 bits were needed to send the alphanumeric text and by 5 bits only 224 characters were able to send. But by 7 bits you can send 160 characters.

## 7. What are the commands that use to set above mentioned modes?

### Answer

To set to SMS mode: AT+CMGF=1

To set to PDU mode: AT+CMGF=0

**8. Write down steps how to use a SMS gateway to send sms using AT commands.**

**Answers**

Type AT to check whether modem is working.

To set too SMS method type AT+CMGF=1 and press enter.

Set up the modem by typing AT+CSMP=17,167,0,16.

Insert the phone number by typing AT+CMGS ="phone number"

Type message

Press ctrl+z

**9. Find out relevant AT commands to get the following details**

**a.Name of the modem manufacturer**

**Answers:** AT+CGMI

**b.Modem model number**

**Answer:** AT+CGMM

**c.Software version**

**Answers:**

**d.Find/Read messages**

**Answers:**