1. Explain what and how the below command does what it does: printf 'HEAD / HTTP/1.1\r\nHost: en.wikipedia.org\r\n\r\n' | nc en.wikipedia.org 80

This command is using the `printf` command to generate an HTTP request and then using the `nc` (netcat) command to send that request to the Wikipedia web server. Let's break down the command:

1. `printf`: This command is used to format and print data. In this case, it is being used to create an HTTP request.

2. `'HEAD / HTTP/1.1\r\nHost: en.wikipedia.org\r\n\r\n'`: This is the string that `printf` is formatting. It represents a simple HTTP request using the HEAD method (which requests the headers of the specified resource) for the root path ("/") of the server. It includes the HTTP version (1.1), and specifies the host as "en.wikipedia.org". The `\r\n` represents carriage return and newline characters, which are used as line terminators in the HTTP protocol.

3. `|`: This is a pipe operator, which takes the output of the command on its left and uses it as the input for the command on its right.

4. `nc en.wikipedia.org 80`: This part of the command uses `nc` (netcat) to establish a network connection to the Wikipedia web server on port 80, which is the default port for HTTP communication.

So, putting it all together, this command is creating an HTTP request for the root path of the Wikipedia server using the HEAD method, and then it is sending that request to the server using netcat on port 80. The response from the server (headers for the root path) will be printed to the terminal.

```
vibp@PF3JTTNF:~$ printf 'HEAD / HTTP/1.1\r\nHost: en.wikipedia.org\r\n\r\n' | nc
 en.wikipedia.org 80
HTTP/1.1 301 Moved Permanently
content-length: 0
location: https://en.wikipedia.org/
server: HAProxy
x-cache: cp5019 int
x-cache-status: int-tls
connection: close
```

2. How will you modify the above command to fetch the contents of www.rediff.com?

printf 'GET / HTTP/1.1\r\nHost: www.rediff.com\r\n\r\n' | nc www.rediff.com 80

```
vibp@PF3JTTNF:~$ printf 'GET / HTTP/1.1\r\nHost: www.rediff.com\r\n\r\n' | nc ww
w.rediff.com 80
HTTP/1.1 301 Moved Permanently
Server: AkamaiGHost
Content-Length: 0
Location: https://www.rediff.com/
Date: Wed, 10 Jan 2024 07:47:13 GMT
Connection: keep-alive
```