

## Sheet 2 Model Answer

1) Formula = Sample Rate \* Sample Bit \* #Channels \* time in seconds :

- Notes:
  - for mono channels we substitute by 1 and for stereo channels we substitute by 2.
  - according to Nyquist theorem Sample Rate equals 2 \* max frequency
- Solution:
  - $= 2 * 22.05 * 1000 * 8 * 2 * 5 * 60 / 8 * 1024$  # to convert to KB we divided by 8\*1024
  - = 25839.8 KB # divide by 1024 to convert to MB
  - = 25.2 MB

2) Formula = Sample Rate \* Sample Bit \* #Channels \* time in seconds :

- Solution:
  - $= 88.2 * 1000 * 8 * 1 * 3 * 60 / 8 * 1024$
  - = 15503.9 KB
  - = 15.1 MB

3)

| k      | -1 | 0   | 1   | 2   | 3   | 4    | 5   | 6    |
|--------|----|-----|-----|-----|-----|------|-----|------|
| x[k]   | 0  | 1.5 | 2.4 | 2.8 | 3.2 | 2.7  | 2.9 | 0    |
| x[k-1] | 0  | 0   | 1.5 | 2.4 | 2.8 | 3.2  | 2.7 | 2.9  |
| d[k]   | 0  | 1.5 | 0.9 | 0.4 | 0.4 | -0.5 | 0.2 | -2.9 |