1. A treatment plant being designed for the Organized Industry Zone in Canakkale requires an equalization basin to even out flow and BOD variations. The following flows and BOD5 have been found to be typical of the average variation over a day.

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| --- | --- | --- |
| Time | Flow, m3/s | BOD5, mg/L |
| 0000 | 0.340 | 123 |
| 0100 | 0.254 | 118 |
| 0200 | 0.160 | 95 |
| 0300 | 0.132 | 80 |
| 0400 | 0.132 | 85 |
| 0500 | 0.140 | 95 |
| 0600 | 0.160 | 100 |
| 0700 | 0.254 | 118 |
| 0800 | 0.360 | 136 |
| 0900 | 0.446 | 170 |
| 1000 | 0.474 | 220 |
| 1100 | 0.482 | 250 |
| 1200 | 0.508 | 268 |
| 1300 | 0.526 | 282 |
| 1400 | 0.530 | 280 |
| 1500 | 0.552 | 268 |
| 1600 | 0.570 | 250 |
| 1700 | 0.596 | 205 |
| 1700 | 0.604 | 168 |
| 1900 | 0.570 | 140 |
| 2000 | 0.552 | 130 |
| 2100 | 0.474 | 146 |
| 2200 | 0.412 | 158 |
| 2300 | 0.372 | 154 |

1. Determine the average flow rate, m3/s.
2. What size equalization basin, in m3, is required to provide for a uniform outflow equal to the average daily flow?
3. Determine the length and width of the tank if the depth of water is 4 m and length to width ratio is 4.
4. Determine the average BOD5 loading (kg/d).