Q6. The solution is as follows:

a. Naïve:

F 2 = 1,703

F 3 = 1,720

F 4 = 1,649

F 5 = 1,686

b. 2-hour SMA:

F 3 = (1,703+1,720) / 2 = 1,711.5

F 4 = (1,720+1,649) / 2 = 1,684.5

F 5 = (1,649+1,686) / 2 = 1,667.5

c. The table provides values for calculating MAD & MSE:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **Naive** | | **2-Hour SMA** | |
| **t** | **At** | **Ft** | **et(At-Ft)** | **Ft** | **et(At-Ft)** |
| 1 | 1703 |  |  |  |  |
| 2 | 1720 | 1703 | 17 |  |  |
| 3 | 1649 | 1720 | -71 | 1711.5 | -62.5 |
| 4 | 1686 | 1649 | 37 | 1684.5 | 1.5 |
| 5 | 1718 | 1686 | 32 | 1667.5 | 50.5 |

Naïve MAD = (|17|+|-71|+|37|+|32|) / 4 = **39.25**

SMA MAD = (|-62.5|+|1.5|+|50.5|) / 3 = **38.1667**

Based on MAD values, **SMA is better**.

d. MSE Calculations

**Naïve MSE**

[(17) 2 +(-71) 2 +(37) 2 +(32) 2 ] / 4 = **1930.75**

**SMA MSE**

[(-62.5) 2 +(1.5) 2 +(50.5) 2 ] / 3 = **2152.9167**

Based on MSE values, **Naïve is better**.

e. The MAD and MSE values are not consistent with each other. A third error

forecasting methodology such as MAPE or bias needs to be calculated to break

the tie.