RESPOSTAS DO CAPÍTULO 3

3. $\widehat{Z}_{24}(1) = 174,488$; $\widehat{Z}_{24}(2) = 178,730$; $\widehat{Z}_{24}(3) = 182,972$; $\widehat{Z}_{24}(4) = 187,214$; $\widehat{Z}_{24}(5) = 191,456$; $\widehat{Z}_{24}(6) = 195,698$; $\widehat{Z}_{24}(7) = 199,940$; $\widehat{Z}_{24}(8) = 204,182$ e $\widehat{Z}_{24}(9) = 208,424$

   $EQM(\text{previsão}) = 939,13$

5. $Z_3^{(4)} = 88,75$; $Z_4^{(4)} = 89,588$; $\cdots$; $Z_{21}^{(4)} = 165,513$ e $Z_{22}^{(4)} = 171,088$

6. $\Delta Z_2 = 5,3$; $\Delta Z_3 = -8,0$; $\Delta Z_4 = 13,5$; $\cdots$; $\Delta Z_{23} = -0,7$; $\Delta Z_{24} = -0,8$

   $\Delta^2 Z_3 = 13,3$; $\Delta^2 Z_4 = 21,5$; $\Delta^2 Z_5 = -17,7$; $\cdots$; $\Delta^2 Z_{23} = -7,7$; $\Delta^2 Z_{24} = -0,1$

7. (a) Existe tendência

   (b) $\widehat{\beta}_0 = 54,905$ e $\widehat{\beta}_1 = 0,022$

   (c) $\widehat{Z}_{126}(1) = 897,49$ e $\widehat{Z}_{126}(2) = 917,46$

   (d) $Z_2^{(3)} = 72,53$; $Z_3^{(3)} = 73,50$; $Z_4^{(3)} = 74,40$; $\cdots$; $Z_{125}^{(3)} = 1306,56$

   (e) $\Delta Z_2 = 0,9$; $\Delta Z_3 = 1,0$; $\Delta Z_4 = 1,0$; $\cdots$; $\Delta Z_{125} = 72,0$; $\Delta Z_{126} = 65,0$

   Não estacionário.

11. (b) $\widehat{T}_t = 260,655 - 11,9143t + 0,265079t^2$

   (c) $Z_7^{(12)} = 155,9$; $Z_8^{(12)} = 157,4$; $Z_9^{(12)} = 158,9$; $\cdots$; $Z_{78}^{(12)} = 1036,7$

12. Temperatura e $p = 0,3$. $\widehat{Z}_1 = 19,12616$; $\widehat{Z}_2 = 19,11015$; $\cdots$ $\widehat{Z}_{365} = 19,55682$

    Temperatura e $p = 0,6$. $\widehat{Z}_1 = 19,94178$; $\widehat{Z}_2 = 19,89802$; $\cdots$ $\widehat{Z}_{365} = 19,71166$

    Umidade e $p = 0,3$. $\widehat{Z}_1 = 83,43691$; $\widehat{Z}_2 = 83,40851$; $\cdots$ $\widehat{Z}_{365} = 79,43959$

    Umidade e $p = 0,6$. $\widehat{Z}_1 = 82,92939$; $\widehat{Z}_2 = 82,91132$; $\cdots$ $\widehat{Z}_{365} = 83,38383$

13. Temperatura e MM7. $Z_4^{(7)} = 17,3000$; $Z_5^{(7)} = 17,3429$; $\cdots$ $Z_{362}^{(7)} = 20,5143$

    Temperatura e MM14. $Z_8^{(14)} = 18,3857$; $Z_9^{(14)} = 18,5464$; $\cdots$ $Z_{358}^{(14)} = 19,7286$

    Umidade e MM7. $Z_4^{(7)} = 81,0143$; $Z_5^{(7)} = 81,2371$; $\cdots$ $Z_{362}^{(7)} = 76,4086$

    Umidade e MM14. $Z_8^{(14)} = 83,3357$; $Z_9^{(14)} = 84,2682$; $\cdots$ $Z_{358}^{(14)} = 76,3843$

14. $Z_3^{(5)} = 5,1700$; $Z_4^{(5)} = 5,3860$; $\cdots$ $Z_{124}^{(5)} = 830,9660$

15. Existe sazonalidade

18. (a) $Z_3^{(4)} = 3,75$; $Z_4^{(4)} = 4,125$; $\cdots$ $Z_{14}^{(4)} = 7,75$

    (b) $Y_1 = 0,25$; $Y_2 = 1,875$; $\cdots$; $Y_{12} = 1,25$

    (c) $\widehat{S}_1 = -1,27083$; $\widehat{S}_2 = -0,270833$; $\widehat{S}_3 = -0,395833$ e $\widehat{S}_4 = 1,93750$;

    $Z_1^{SA} = 4,2708$; $Z_2^{SA} = 2,2708$; $\cdots$; $Z_{16}^{SA} = 6,0625$;

    (d) Sim

19. (b) $\widehat{\mu} = 22,3842$; $\widehat{\alpha}_1 = 3,1658$; $\widehat{\alpha}_2 = 3,7858$; $\widehat{\alpha}_3 = 2,5859$; $\widehat{\alpha}_4 = 0,1658$; $\widehat{\alpha}_5 =$

$-1,1742$; $\widehat{\alpha}_6 = -2,7742$; $\widehat{\alpha}_7 = -2,8442$; $\widehat{\alpha}_8 = -2,4742$; $\widehat{\alpha}_9 = 2,3142$; $\widehat{\alpha}_{10} = -0,7442$; $\widehat{\alpha}_{11} = 0,7658$ e $\widehat{\alpha}_{12} = 1,8462$

(c) São significativas

20. $\widehat{Z}_{16}(1) = 7,1875$

$\widehat{Z}_{16}(2) = 7,9375$

$\widehat{Z}_{16}(3) = 8,9375$

$\widehat{Z}_{16}(4) = 10,4375$

21. (a) Multiplicativa.

(b) Multiplicativa.

22. (b) $\widehat{\beta}_0 = 1319,19$; $\widehat{\beta}_1 = 22,6806$; $\widehat{\alpha}_1 = -92,783$; $\widehat{\alpha}_2 = 28,965$; $\widehat{\alpha}_3 = 87,142$ e $\widehat{\alpha}_4 = -23,32$

(c) São significativas

23. (c) Não

(d) Série

Lag	ACF	T	LBQ
1	0,974378	9,09	85,48
2	0,9501	5,20	167,71
3	0,927848	3,99	247,07

Retornos

Lag	ACF	T	LBQ
1	-0,085945	-0,80	0,66
2	-0,048382	-0,45	0,87
3	0,04656	0,43	1,07