

CS3081 Assignment 3

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Question 1 (Problem 4.26)

- (i) (a) = 4, (b) = 7
- (ii) (a) = 2.2, (b) = 7
- (iii) (a) = 4, (b) = 2.2
- (iv) (a) = 7, (b) = 4

Your Answer ((i)-(iv)): (i)

Question 2 (Problem 6.13)

- (i) 420W
- (ii) 420KW
- (iii) 530W
- (iv) 580KW

Your Answer ((i)-(iv)): (iii)

Question 3 (Problem 8.7)

The truncation error is:

- (i)  $O(h)$
- (ii)  $O(h^2)$
- (iii)  $O(h^3)$
- (iv)  $O(h^4)$

Your Answer ((i)-(iv)): (ii)

Question 4 (Problem 8.9)

- (i)  $f'_{\text{male}}(2006)=4965$ ;  
 $f'_{\text{female}}(2006)=10681$ ;  
 $\text{Predicted\_Males}(2008)=673601$ ;  
 $\text{Error\_Males}=0.62\%$ ;  
 $\text{Predicted\_Females}(2008)=277990$ ;  
 $\text{Error\_Females}=0.58\%$
  
- (ii)  $f'_{\text{male}}(2006)=4940$ ;  
 $f'_{\text{female}}(2006)=10681$ ;  
 $\text{Predicted\_Males}(2008)=673601$ ;  
 $\text{Error\_Males}=0.62\%$ ;  
 $\text{Predicted\_Females}(2008)=277987$ ;  
 $\text{Error\_Females}=0.57\%$
  
- (iii)  $f'_{\text{male}}(2006)=4940$ ;  
 $f'_{\text{female}}(2006)=10681$ ;  
 $\text{Predicted\_Males}(2008)=673601$ ;  
 $\text{Error\_Males}=0.68\%$ ;  
 $\text{Predicted\_Females}(2008)=277987$ ;  
 $\text{Error\_Females}=0.42\%$
  
- (iv)  $f'_{\text{male}}(2006)=4965$ ;  
 $f'_{\text{female}}(2006)=10670$ ;  
 $\text{Predicted\_Males}(2008)=673601$ ;  
 $\text{Error\_Males}=0.68\%$ ;  
 $\text{Predicted\_Females}(2008)=277987$ ;  
 $\text{Error\_Females}=0.52\%$

Your Answer ((i)-(iv)): (ii)