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Please indicate your answers by entering the option ( i), (ii), (iii) or (iv) ) where asked.  
You should append the completed document as a pdf with your typewritten worked solutions including MATLAB code) and upload to Blackboard by Friday 22<sup>nd</sup> of March 2019.

Q 4.23

(i)

L =

1.5000	0	0	0
-2.0000	1.0000	0	0
0.5000	1.0000	1.5000	0
-2.0000	3.5000	-0.5000	1.0000

U =

4.0000	-1.0000	3.0000	2.0000
0	-1.0000	3.0000	0.5000
0	0	2.0000	1.0000
0	0	0	3.0000

(ii)

L =

1.0000	0	0	0
-2.0000	1.0000	0	0
0.5000	1.5000	1.0000	0
-2.0000	3.0000	-0.5000	1.0000

U =

4.0000	-1.0000	3.0000	2.0000
0	-2.0000	3.0000	0.5000
0	0	4.0000	2.0000
0	0	0	3.0000

(iii)

L =

1.5000	0	0	0
-2.0000	1.0000	0	0
0.5000	1.0000	1.0000	0
-2.0000	2.0000	-0.5000	1.0000

U =

3.0000	-1.5000	3.0000	2.0000
0	-2.0000	3.0000	0.5000
0	0	4.0000	2.5000
0	0	0	1.0000

(iv)

L =

1.5000	0	0	0
-2.0000	1.5000	0	0
0.5000	1.5000	1.5000	0
-2.0000	3.0000	-0.5000	1.5000

U =

4.0000	-1.0000	3.0000	2.0000
0	-2.0000	3.0000	0.5000
0	0	4.0000	2.0000
0	0	0	2.0000

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

### Q 5.17

You need only to indicate the best team and the worst team (from teams 1 to 6).

**Your Answers:            Best: 2 and 5   Worst: 1**

**Q 6.3**

- (i)  $b = 4.6831 \times 10^{-8}, m = 0.022, \text{population}(1985) = 1014 \text{ million}$
- (ii)  $b = 4.8932 \times 10^{-8}, m = 0.022, \text{population}(1985) = 1024 \text{ million}$
- (iii)  $b = 4.6931 \times 10^{-8}, m = 0.012, \text{population}(1985) = 1038 \text{ million}$
- (iv)  $b = 4.8932 \times 10^{-8}, m = 0.022, \text{population}(1985) = 1024 \text{ million}$

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