BMM3553 Mechanical Vibrations

Assignment 3
(Multi-Degree of Freedom)

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Figure Q1 shows a complex multi-degree of freedom spring-mass system.

❑ Develop the equation of motion of the system.

(6 Marks)

❑ If $m_1=m_2=m_3=m$ and $k_1=k_2=k_3=k_4=k_5=k$, Determine the natural frequencies and mode shape of the system.

(12 Marks)

❑ Estimate the largest strain that can occur to any of the spring in the system. State which spring in your answer.

(7 Marks)
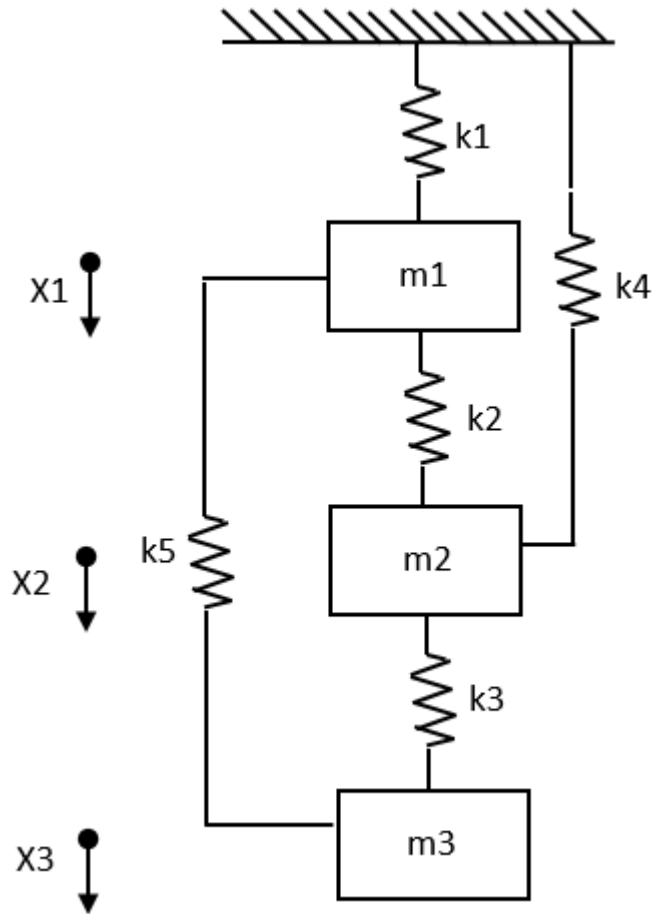
Figure Q1

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