5.

$$\mathbf{M} = \begin{pmatrix} 1 & 2 & k \\ -1 & -3 & 4 \\ 2 & 6 & -8 \end{pmatrix} \quad \text{where } k \text{ is a constant}$$

Given that **M** has a repeated eigenvalue, determine

(i) the possible values of k,

(ii) all corresponding eigenvalues of **M** for each value of k.

(7)

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Question 5 continued

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Question 5 continued

(Total for Question 5 is 7 marks)