

§1 Question

Find corrections to the eigenvalues of the matrix H given below to lowest non vanishing order in ϵ

$$H = \begin{pmatrix} 2 & 0 & \epsilon \\ 0 & 1 & \epsilon \\ \epsilon & \epsilon & 2 \end{pmatrix}$$

§2 Categories

- **Category A ; Marks : 10/12**

Eigenvectors correct but not normalized

- **Category D; Marks : 3/12 ?**

Using wrong eigenvectors for eigenvalues 1,2.

- **Category F; Marks 0** Using nondegenerate formula for $E=2$;

Using wrong eigenvectors for eigenvalues 1,2.

Confusion between degenerate and nondegenerate cases.

Remarks Many students are computing eigenvectors of the diagonal part; which they could have written directly.

Attempting to write eigenvectors directly;but chose wrong eigenvectors.

18qm-Final-Q1.pdf Ver 17.6.x

LastUpDated : July 7, 2018

Created : June 2017

KAPOOR

<http://ospace.org/users/kapoor>

No Warranty, Implied or Otherwise

License: Creative Commons

PROOFS