

| Scale | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Mark /10 for this criterion |
|--|---|---|---|--|---|---|---|---|---|---|--|-----------------------------|
| Calculation of ground state energy [Weighted at 10%] | Not calculated | | | | Major error in calculation that should have been spotted and corrected. | | Minor error in calculation | | | | Correctly and efficiently calculated using Runge Kutta methods as used in previous sessions, and fully explained | |
| Calculation of ground state wavefunction [Weighted at 5%] | Not calculated | | | | Major error in calculation that should have been spotted and corrected. | | Minor error in calculation | | | | Correctly and efficiently calculated and normalised, with complete text cell explanations | |
| Comparison with analytical results [Weighted at 5%] | Not compared | | | | Compared and found to be different, without explanation or commentary | | | | | | Fully compared and verified | |
| Excited state wavefunctions and energies [Weighted at 10%] | Not calculated | | | | Major error or omission in calculation or interpretation. | | Minor error, eg valid wavefunctions but not those for $n = 2, 3, 4$, or minor omission | | Correctly calculated, but ... [REDACTED] | | [REDACTED] | |
| Large n excited states [Weighted at 2%] | Not calculated | | | | | Calculated but with errors or wrong interpretation | | | | | At least two high-energy states ($18 \leq n \leq 20$) calculated correctly and verified, with the value of n explicitly checked. | |
| Embedded harmonic potential [Weighted at 10%] | Not calculated | | | | Major error or omission in calculation or interpretation. | | Minor errors or omissions, or omissions / misunderstanding in the interpretation of the results | | Correctly calculated for both ground state and low-lying excited states, fully compared qualitatively with analytical harmonic potential results. | | Also compared quantitatively with analytical harmonic potential results, with fully complete and correct interpretation and discussion | |
| Embedded finite square well [Weighted at 10%] | Not calculated | | | | Major error or omission in calculation or interpretation. | | Minor errors or omissions, or omissions / misunderstanding in the interpretation of the results | | Correctly calculated for both ground state and low-lying excited states, fully compared qualitatively with analytical finite square results. | | [REDACTED] | |
| Own choice of potential [Weighted at 10%] | Not calculated | | | Major error in calculation or interpretation. | | Poor choice, or minor calculation / interpretation errors. | | Generally sensible choice, correctly calculated and well-interpreted. | | | [REDACTED] | |
| Units (overall - missing units will also be penalised in the relevant section) [Weighted at 3%] | No units present! | | | | Most units missing /wrong | | Mostly present and correct, but a few units missing or wrong. | | | | Units are present and correct throughout in both text cells and code comments | |
| Overall quality of plots [Weighted at 10%] | No plots produced by the submitted code. | | | Inadequate plots - for example, frequent missing axis labels or titles. | | Most but not all requirements of the plots met - for example, occasional missing legends, or errors in the axis labels/title | | All plot requirements met: everything is clearly plotted and correctly and appropriately labelled. | | | [REDACTED] | |
| Overall quality of code style [Weighted at 5%] | Code would require significant correction before it can be run. | | | Code has errors (requiring the marker to correct it before it can be run) - for example an undefined variable or code cells wrongly ordered. | | The code runs with no errors, but is somewhat inefficient or poorly structured, or has a poor choice of variable names | | Code is clear, follows best practice guidelines, with a good effort made to ensure appropriate variable names and efficiency of calculation. Runs without errors or warnings. | | | [REDACTED] | |
| Overall quality of the commenting in the code cells [Weighted at 5%] | No comments are included | | | Significant lack of useful comments in the submitted code. | Missing some/all docstrings in functions | Code is undercommented, unnecessarily verbose, or so unnecessarily overcommented that readability is affected. Nonetheless, the comments remain decipherable and are of some use. | | Code is clearly and appropriately commented. Complicated parts of code have a higher level of commenting than simpler parts. Coded pasted/repurposed from other sources is clearly referenced as such. | | | [REDACTED] | |
| Overall quality of text cells and discussion [Weighted at 12%] | Text cells have not been included | | | Not enough text cells included to create a self-contained document, or poor quality, for example grammatical/linguistic errors severely affecting the readability of the commentary. | | Acceptable commentary, but needs expansion in several areas. | | A clear, self-contained document. Text cells consist of complete, well-structured and grammatical paragraphs. It is clear what the student is calculating, how they are going about it, and why they are doing it. A clear understanding of the physics of the problem is demonstrated. | | | [REDACTED] | |
| Referencing and Bibliography [Weighted at 3%] | Bibliography is missing | | | Bibliography is present but is lacking multiple sources, and/or citations are missing in the text cell discussion | | The bibliography is present, contains all relevant sources, and is cited at the appropriate points in the text throughout. | | In addition, the sources included in the bibliography indicate the student has read around the topics more widely and has selected key relevant sources to include and cite. | | | [REDACTED] | |
| | | | | | | | | | | | TOTAL (/100) | |