**PAT Advanced Techniques - Updated Jan 2025**

**MAXIMUM 4 MARKS**

**Candidates can choose a combination of techniques to be awarded a maximum of 4 marks**

**NOTE: PATs with no advanced techniques are awarded 0.**

| 2 D Arrays | 1½ |
| --- | --- |
| Timer | ½ |
| Threads where there significant code in the run method | 1 |
| Action command to link components | ½ |
| Game engines such as Unity provided that there is significant code written.  **Note - permission needs to be obtained from the PAT and SBA Moderator.** | 3 |
| Contextual Help (F1) | 1 |
| Array of buttons generated by code | 1 |
| Encryption and decryption of data | 1 |
| Any form of Artificial Intelligence – one method | 1 |
| Any form of Artificial Intelligence – more than one method | 2 |
| More than 4 database tables with at least ONE 4 table join | 2 |
| Hover buttons that change when a mouse is over | ½ |
| Collision Detection for objects in Games such as shooting items. This must be coded by the candidate and not provided by the game engine | 1 |
| Mapping system where items states are mapped to values using a constant array | 1 |
| Networking using IP addresses to communicate between devices. Such as a chatroom | 3 |
| Reading or writing to JSON Files with a simple data structure - e.g., an object or an array. | 1 |
| Reading or writing to JSON Files with a complex data structure - e.g., an object with a field that is an array, or an array of objects or any combination. | 2 |
| Gamification - details (levels, points, rewards) of the user are saved and are updated as the user progresses based on some form of logic. | 1½ |
| Graphs, Emails, Music and other APIs | 1-1½ |
| Code written in another language not taught at the school. For example, Google Script, C#. **Note - permission needs to be obtained from the PAT and SBA Moderator.** | 3 |