

# BCS Higher Education Qualification

## Professional Graduate Diploma

October 2025

### EXAMINERS' REPORT

#### Advanced Database Management Systems

##### General Comments:

Achievements in this paper have generally been very good with many strong answers to questions.

##### Questions Report:

A1	<p>Two thirds of students answered this question, of which 75% passed.</p> <p>Differences between OLTP and Datawarehouses were well explained, but some answers kept repeating the same points in different words rather than adding additional points.</p> <p>Application of operations to the datacube were done well by most, but some went too far in rollup rolling up both region and time; some students only described what the operations do, without executing them on the given example as required.</p> <p>Slowly changing dimensions have not been addressed by all students; some provided perfect answers, but many did not know about the concept and invented creative answers.</p>
A2	<p>Just under half of learners attempted this, but 80% of those passed.</p> <p>Most produced very good query trees; however, some did not create the tree that matches the query but applied optimisations as they were making the tree. Questions on indexing and concurrency management were answered reasonably well, with the greatest shortcoming being a focus on the correct answer without exploring merits and disadvantages of the others. Many learners missed the point about frequency of operations which is clearly a key issue in concurrent systems and influences the final choice of options to manage.</p>
A3	<p>Equal to A2 in terms of learners who attempted this and who passed.</p> <p>Identifying the RBAC policy was done well, but not all learners specified what objects users in roles can access; casting the design into SQL GRANT statements was done well by most. Encapsulating restrictions through views and further RBAC was not attempted by many and a good number of those who did attempt it did not create the required view.</p>

B4	<p>Almost all students attempted this with a 75% pass rate.</p> <p>Comparing NoSQL to RDBMS was attempted by most, not all suggested dimensions were considered, and arguments often were quite repetitive on the same issues. Some only portrayed one of the two systems (e.g. just RDBMS) and some did not have any understanding of databases beyond RDBMS. In the question on strong versus eventual consistency many learners provided full explanations of BASE and ACID but failed to really focus on the key aspect of concurrency.</p> <p>Some students still confuse 2PC (two phase commit) with locking mechanisms, but those who don't have shown good understanding their answers.</p>
B5	<p>The final question was also attempted by almost all students with a 70% pass rate.</p> <p>Learners had showed good understanding of hardware bottlenecks, but some focused on other issues not asked for in the question (with some even suggesting to not improve the current system but to move to the cloud).</p> <p>Focus has sometimes been too much on what the respective hardware component does in general and not specifically how it influences query outcomes. The fragmentation question was well answered but many learners did not really commit to a choice with many suggesting hybrid approaches but not really justifying their answer.</p>