

1. **Data race** – What is data race in a program? (1 point) Regarding a volatile variable in JVM, what type of operations it is useful for (1 point), how it is reflected in the native code (2 points)? How cache is organised in today's CPUs? (1 point) From cache perspective, what is true sharing (1 point), what is false sharing (1 point), why it is important to consider sharing issues? (1 point) (8 points this question)

2. **Escape Analysis** – What is escape analysis in JVM and why it is important for programmer? (2 points) In which stage it is applied? (1 point) Does inline optimization in JIT compiler changing the scope of escape analysis? (1 point) Enumerate three escape analysis classifications and briefly describe them. (3 points) (7 points this question)

Total points: 15