6 Databases (TGG)

Consider the following three tables.

$S(\underline{sid},\ A)$ $\qquad$ $R(\underline{sid},\ \underline{tid},\ B)$ $\qquad$ $T(\underline{tid},\ C)$

sid	A
s1	a1
s2	a2
s3	a3

sid	tid	B
s1	t1	b1
s1	t2	b2
s2	t1	b4
s2	t3	b5

tid	C
t1	c1
t2	c2
t3	c3
t4	c4

(a) Represent the information in these three tables in a single table, using NULL values where needed. [4 marks]

(b) Represent the information in these three tables as three JSON objects, each associated with one of the values of the *sid* key. Is any information lost? [4 marks]

(c) Represent the information in these three tables as four JSON objects, each associated with one of the values of the *tid* key. Is any information lost? [4 marks]

(d) We now have three distinct ways of representing the same information (the original tables, one big table, and the collection of JSON objects from parts (b) and (c)). Carefully compare and contrast these approaches and discuss their related advantages and disadvantages. [8 marks]