Written Exam for the B.Sc. or M.Sc. in Economics Summer 2010
Auctions
August 2010

Hints for solution

1. The fact that resale is not allowed in the near future indicate that bidders do not buy for speculative purposes, and this again means that it may be acceptable to assume private values.

There is no general result about revenue equivalence in multiunit auctions, however, it is known that the payments and revenue of any two auctions with the same allocation rule differ at most by a constant. But the auctions considered here do not allocate in the same way, so nothing can be said in general about the revenue ranking of the two auctions.

It is known that in simple cases of discriminatory auctions, agents submit flat demands (where bids of the first and second object are the same) when their difference in marginal value is small, and this should be expected in our case, since the second lot must have a value which is very close to that of the first lot.

2. The natural candidate for a procedure, which can get efficient decisions is the VCG mechanism (Krishna ch.5 and 10, lecture notes). However, using the pivot version of the VCG mechanism one will need to collect some money from parents, which is not allowed. One might then look for other versions of the VCG mechanism where there is no net transfer of money from parents to the school. The conditions for budget balance in the VCG mechanism are however very restrictive, so that they will typically not be satisfied, and consequently we must renounce on the demand for efficient decisions.

3. We are dealing with a case of single object auctions, and the problem is to choose auction design so as to get the highest expected revenue, described in Krishna ch. 4,7 and 8. In the case of symmetric buyers it is known that the English auction is better than second price which again is better than first price auctions. This holds even if the values are not independent.

However, the description of the case indicates that we do not have symmetric bidders, and in this case, the revenue ranking above does not hold, in particular there are cases where the second-price auction yields higher expected revenue than the first-price auction and vice versa. If values are independent, the English and the second-price auctions give the same revenue.

A reasonable choice seems to be the second price auction which is the best when values are private and not too asymmetric, and which is easier to carry out in the context of the case considered.