Database Management System – cs422 DE

Lab 6 – Week 13

This Lab is based on Query Processing.

- Submit your *own work* on time. No credit will be given if the lab is submitted after the due date.
- Note that the completed lab should be submitted in .doc, .docx, .rtf, .pdf or .zip format only.

Solve the following Exercises from the course text book.

1. 23.17/21.17 (5^{th}/4^{th} edition)

Using the Hotel schema given at the start of the Exercises at the end of Chapter 3, determine whether the following queries are semantically correct

(a)
```
SELECT r.type, r.price
FROM Room r, Hotel h
WHERE r.hotel_number = h.hotel_number AND
h.hotel_name = 'Grosvenor Hotel' AND
r.type > 100;
```

Not semantically correct: hotel_number and hotel_name are not the names of attributes in the schema; type is character string and so cannot be compared with an integer value (100).

(b)
```
SELECT g.guestNo,g.name
FROM Hotel h, Booking b, Guest g
WHERE h,hotelNo = b.hotelNo AND h.hName = 'Grosvenor Hotel';
```

Not semantically correct: g.name and h.hName not in schema; Guest table not connected to remainder of query.

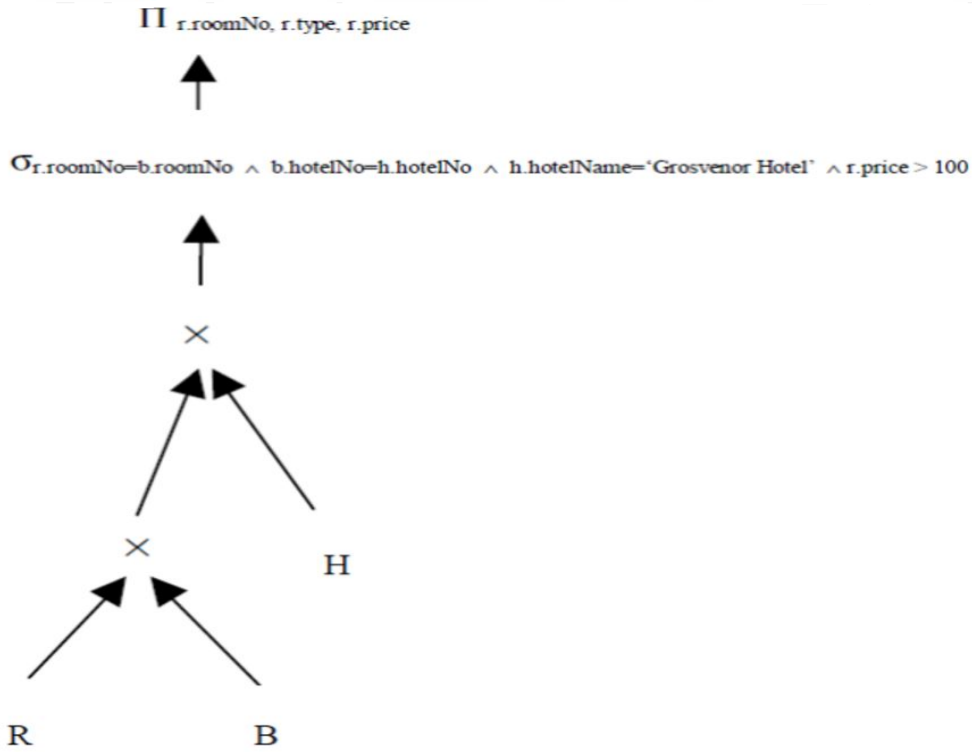
(c)
```
SELECT r.roomNo, h.hotelNo
FROM Hotel h, Booking b,Room r
WHERE h.hotelNo = b.hotelNo AND h.hotelNo = 'H21' AND
b.roomNo = r.roomNo AND type = 's' AND b.hotelNo = 'H22';
```

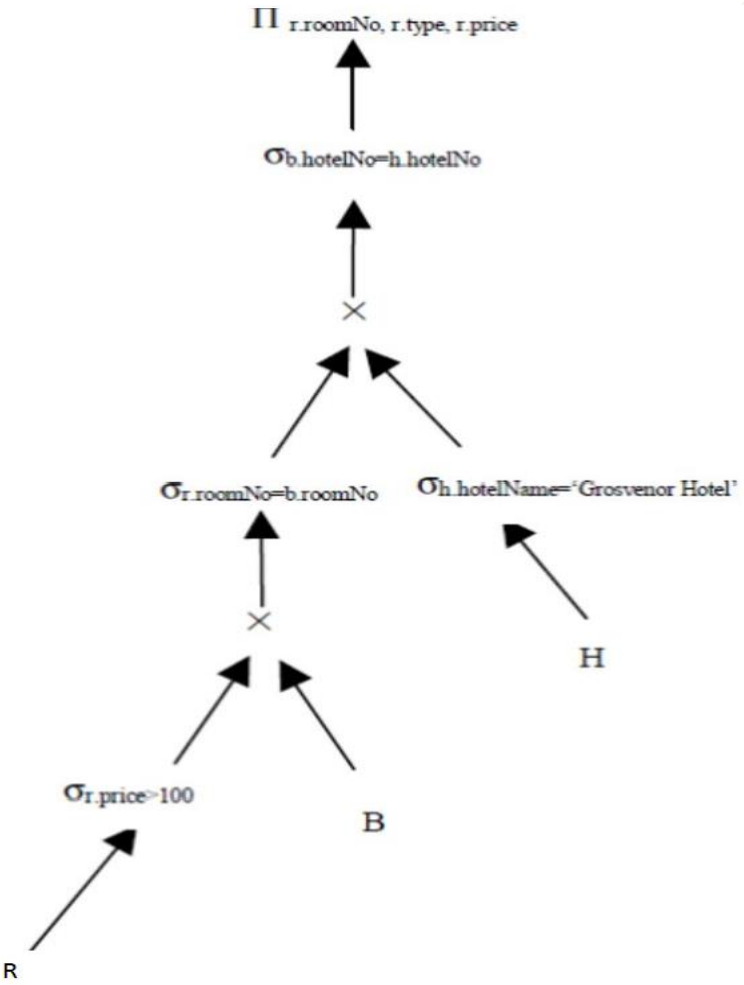
Not semantically correct: hotelNo cannot be both H@! and H22 in Booking.

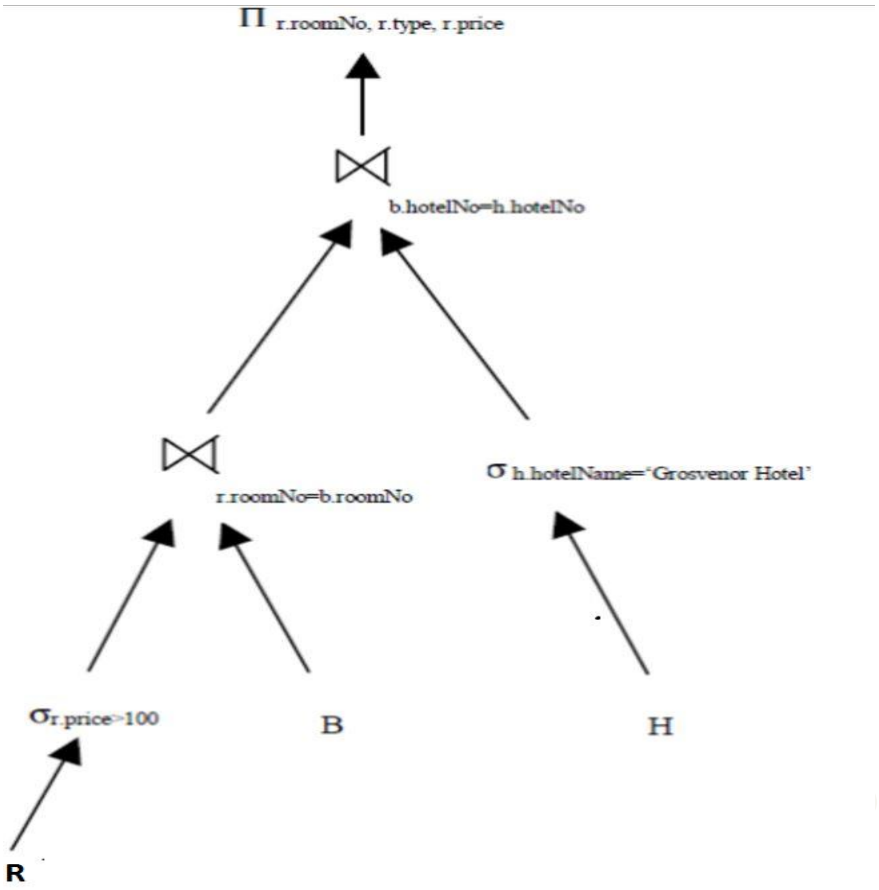
2. 23.18/21.18 (5^{th}/4^{th} edition)

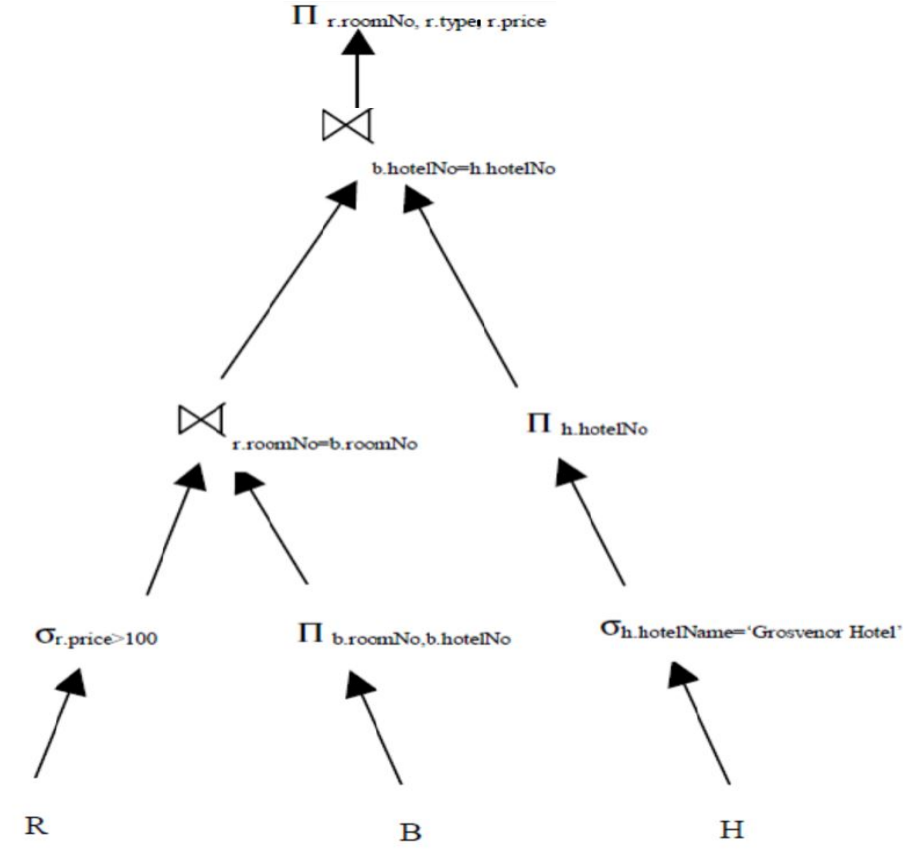
(a)
```
SELECT r.roomNo, r.type, r.price
FROM Room r, Booking b, Hotel h
WHERE r.roomNo = b.roomNo AND b.hotelNo = h.hotelNo AND
h.hotelName = 'Grosvenor Hotel' AND r.price > 100;
```

MUM-DBMS

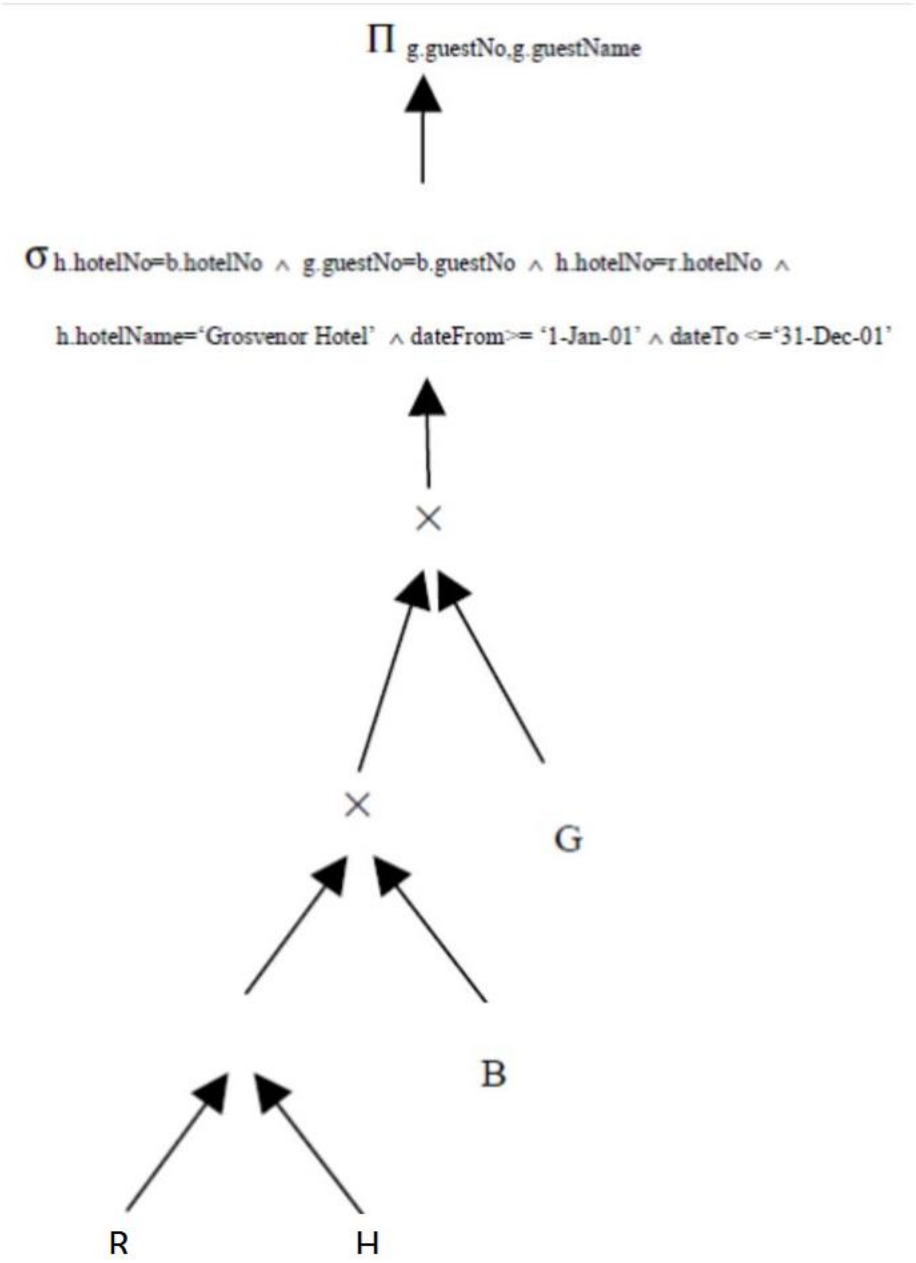

Π r.roomNo, r.type, r.price
σr.roomNo=b.roomNo ∧ b.hotelNo=h.hotelNo ∧ h.hotelName='Grosvenor Hotel' ∧ r.price > 100
×
×
H
R
B

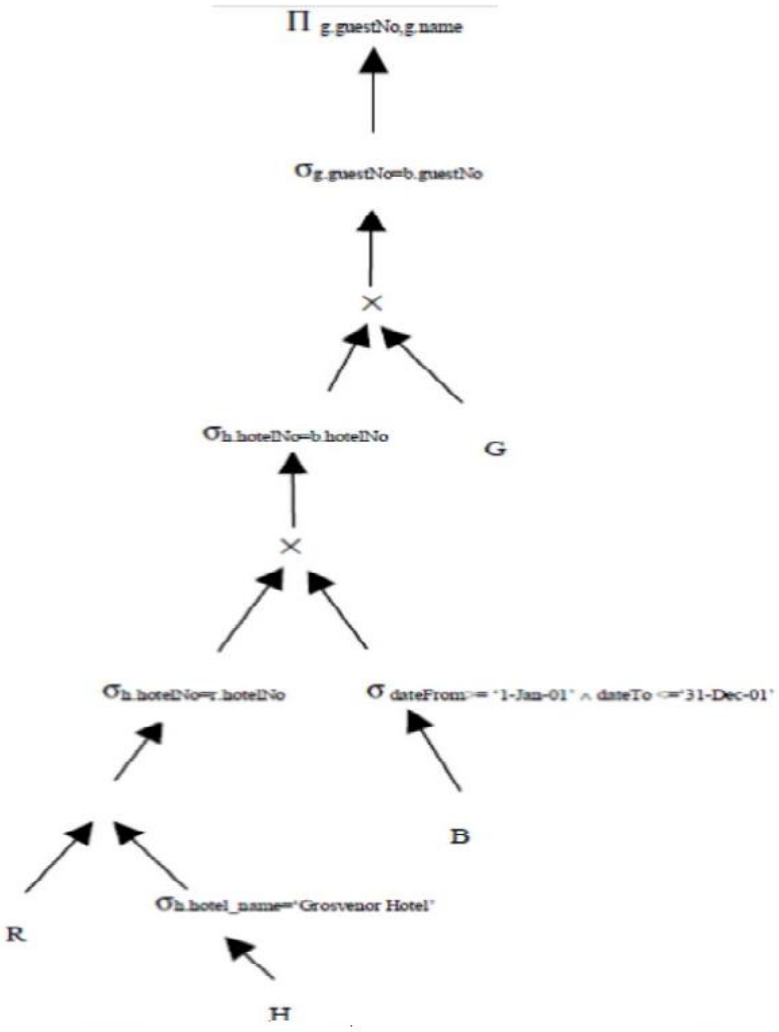

Π r.roomNo, r.type, r.price
σb.hotelNo=h.hotelNo
×
σr.roomNo=b.roomNo
σh.hotelName='Grosvenor Hotel'
×
H
σr.price>100
B
R

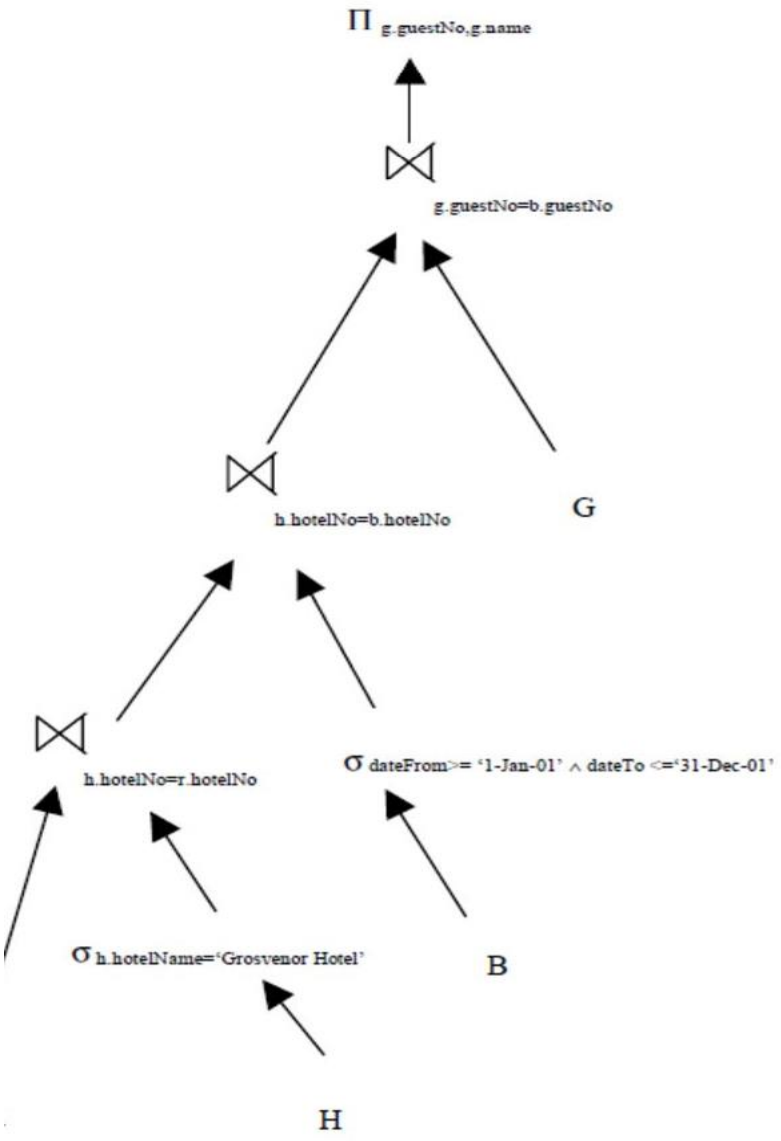

Π r.roomNo, r.type, r.price
b.hotelNo=h.hotelNo
r.roomNo=b.roomNo
σ h.hotelName='Grosvenor Hotel'
σr.price>100
B
H
R

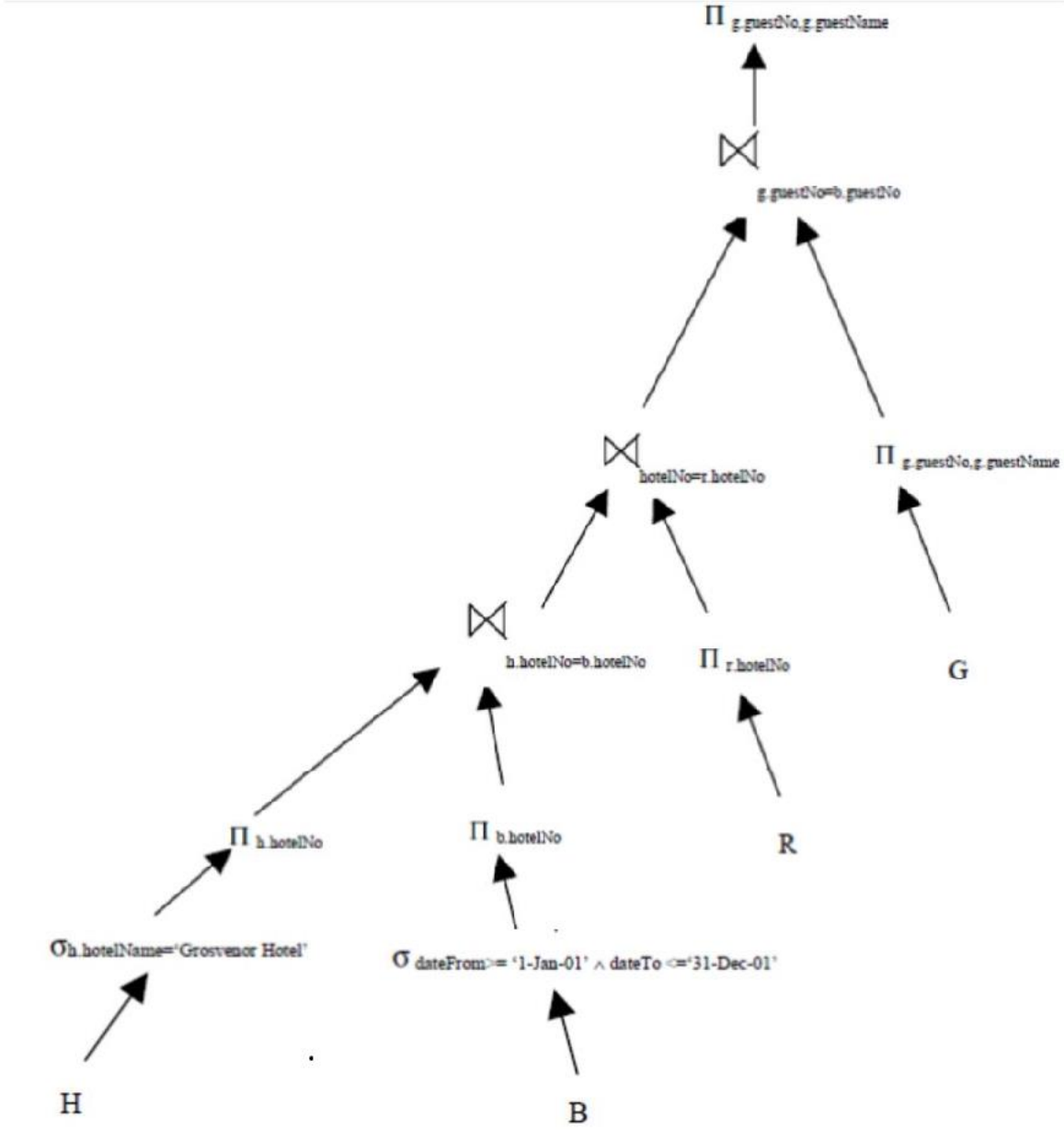

Π r.roomNo, r.type, r.price
b.hotelNo=h.hotelNo
r.roomNo=b.roomNo
Π h.hotelNo
σr.price>100
Π b.roomNo,b.hotelNo
σh.hotelName='Grosvenor Hotel'
R
B
H

(b)SELECT g.guestNo, g.guestName
FROM Room r, Hotel h, Booking b, Guest g
WHERE h.hotelNo = b.hotelNo AND g.guestNo = b.guestNo AND
h.hotelNo = r.hotelNo AND h.hotelName = ‘Grosvenor Hotel’ AND
dateFrom >= ‘1-Jan-o4’ AND dateTo <= ’31-Dec-04’;




Π g.guestNo,g.name
σg.guestNo=b.guestNo
×
σh.hotelNo=b.hotelNo
G
×
σh.hotelNo=r.hotelNo
σ dateFrom>= '1-Jan-01' ∧ dateTo <='31-Dec-01'
B
R
σh.hotel_name='Grosvenor Hotel'
H


Π g.guestNo,g.name
g.guestNo=b.guestNo
h.hotelNo=b.hotelNo
G
h.hotelNo=r.hotelNo
σ dateFrom>= '1-Jan-01' ∧ dateTo <='31-Dec-01'
σ h.hotelName='Grosvenor Hotel'
B
H


Π g.guestNo,g.guestName
g.guestNo=b.guestNo
hotelNo=r.hotelNo
Π g.guestNo,g.guestName
h.hotelNo=b.hotelNo
Π r.hotelNo
G
Π h.hotelNo
Π b.hotelNo
R
σh.hotelName='Grosvenor Hotel'
σ dateFrom>= '1-Jan-01' ∧ dateTo <='31-Dec-01'
H
B