

2.

(i)

(ii)

```
select id, name
from artist
where
begin_year = all (select begin_year
                  from artist
                  where begin_year = 1)
```

```
[(825393, Weird Shapes),
(830814, Bruno Gallone),
(843691, Laetoli Setps),
(847586, The Dirty Beggars),
(862601, Dog Years),
(874907, Those Who Dare)]
```

(iii)

```
select id, name
from artist
where begin_year = (select min(begin_year)
                   from artist)
```

```
[(825393, Weird Shapes),
(830814, Bruno Gallone),
(843691, Laetoli Setps),
(847586, The Dirty Beggars),
(862601, Dog Years),
(874907, Those Who Dare)]
```

1.

(i)

$\Pi_{ArtistID, Artist} (\sigma_{type='penn'} (ARTIST)) -$

$\Pi_{Artist.ID, Artist.Name} (ARTIST \bowtie_{Artist.ID = CONCERT.Artist} CONCERT$

$\bowtie_{CONCERT.Country = Country.ID} (\sigma_{Country.name =$

$'United States' (Country))$

(ii)

select id, name
from artist
where exists

(

select artist
from concert
where country != 222

)

[1000 Tupel]

(iii)

select id, name
from artist
where artist.id in

(

select artist
from concert
where country != 222

)

[3000 Tupel]