1. CHECK (weight <= 5)

2. (a) CREATE VIEW Employee Names AS

   SELECT ename

   FROM Employees

   CREATE VIEW Dept Info AS

   SELECT dept, AVG (salary) AS avgsalary

   FROM Employees

   GROUP BY dept

   (b) SELECT and DELETE for Employee Names

   and

   SELECT for Dept Info

(C) No

Suppose we want to know the salary of an

Employee ("Junhong", "Cs", "100")

Then we can

DELETE FROM Employee Names
WHERE ename <> "Junhong"

to get rid of everyone except "Junhong"

Then we can

SELECT * FROM Dept Info

to check the avg salary.

Since there's only one person left, the avg salary

shown is "Junhong"'s salary.

(d)   UPDATE Dept Info

SET avg Salary = 0

(e)   GRANT SELECT, UPDATE

ON Employees

TO Joe

WITH GRANT OPTION

GRANT SELECT, UPDATE

ON Employee Names

TO Joe

WITH GRANT OPTION

3. (a) $6 \cdot 10 \cdot 0 \cdot 0 \cdot 0 \cdot 500 \cdot 1$ (kB)

$= 30000000$ (kB)

$= 30$ (GB)

(b) 6000 RPM (rotations per minute)

$$\frac{1 \text{ minute}}{6000 \text{ rotations}} \cdot \frac{60 \text{ seconds}}{1 \text{ minute}} = \frac{1 \text{ second}}{100 \text{ rotations}} = 10 \text{ ms / rotation}$$

Seek time $= 10$ ms

rotational time $= \frac{1}{2} \cdot 10 = 5$ ms

transfer time $= \frac{1}{500} \cdot 10 = \frac{1}{50} = 0.02$ ms

$10 + 5 + 0.02 = \boxed{15.02 \text{ ms}}$

(C)   1 tuple → 2 + 4 + 4 + 4 + 4 + 4 + 30 + 20 = 72 bytes

1000 tuples → 72000 bytes

1024 bytes / sector (block)

So $\left\lceil \dfrac{72000}{1024} \right\rceil = \left\lceil 70.3125 \right\rceil \approx \boxed{71 \text{ blocks}}$

(d)

seek time = 10 ms

rotational time = 5 ms

transfer time : $71 \cdot 0.02 \text{ ms} = 1.42 \text{ ms}$

$10 + 5 + 1.42 = \boxed{16.42 \text{ ms}}$

(e)

$24 (10 + 5 + 3 \cdot 0.02) = 24 \cdot 15.06$

$= \boxed{361.44 \text{ ms}}$