

一. 医院系统

$$1. \pi_{bno, pname}(CP) \div \pi_{pname}(P) \bowtie$$

$$\pi_{bno, bname}(B)$$

$$2. \pi_{bno, pname}(CP) \div \pi_{pname}(\sigma_{pname='C9'}(P))$$

$\vee_{pname='C9'}$

$$\bowtie \pi_{bno, bname}(B)$$

$$3. \pi_{bno, bname}(B) - \pi_{B.bno, bname}(CP \bowtie B)$$

$$4. (\pi_{bno, tno}(L) \cup \pi_{bno, tno}(CP)) \div$$

$$\pi_{tno}(T) \bowtie \pi_{bno, bname}(B)$$

$$5. \pi_{bno, bname}(T) - \pi_{T.tno, bname}(\sigma_{pname='C9'}(CP) \bowtie T)$$

$\vee_{pname='C9'}$

$$6. \pi_{T_2.bno, T_2.bname, T_2.kname} (\pi_{kname} (\sigma_{bname = \frac{1}{2} p} (T_1) \bowtie T_2)$$

$$7. \pi_{B.bno, bname} (\sigma_{price > 1000} (P) \bowtie CP \bowtie B)$$

$$8. \pi_{bno, mno} (C \bowtie CD) \div \pi_{mno} (M) \bowtie \pi_{bno, bname} (T)$$

$$9. \pi_{cno} (\sigma_{CD1.mno < CD2.mno} (CD, \cancel{CD2}))$$

$CD1.cno = CD2.cno$

$$10. (\pi_{pname} (P) - \pi_{pname} (\sigma_{bname = \frac{1}{2} p} (T) \bowtie CP)) \bowtie P$$

二. 学生库

$$1. \pi_{sno, cno}(Sc) \div \pi_{cno}(\sigma_{cname='DB'}(C))$$

$\vee_{cname='DS'}$
 $\vee_{cname='GP'}$

$$\bowtie \pi_{sno, smame}(S)$$

$$2. \pi_{sno, cno}(Sc) \div \pi_{cno}(\sigma_{sno='s012001'}(Sc))$$

$$\bowtie \pi_{sno, smame}(S)$$

$$3. \pi_{sno, cno}(Sc) \div \pi_{cno}(\sigma_{cname='GP'}(S) \bowtie Sc)$$

$$\bowtie \pi_{sno, smame}(S)$$

$$4. \pi_{cno, cname}(C) - \pi_{cno, cname}(\sigma_{sno='s01'}(S) \bowtie Sc)$$

$$\bowtie S_1 \bowtie C$$

$$5. \pi_{sno, cno}(Sc) \div \pi_{cno}(\sigma_{sno='s01'}(S) \bowtie Sc)$$

$$\bowtie \pi_{sno, smame, sd}(S)$$

$$6. \pi_{sno, cno}(SC) \div \pi_{cno}(\sigma_{tname = 'Zephyr'}(C))$$

$$\bowtie \pi_{sno, sname}(S)$$

$$7. \pi_{sno, sname}(S) - \pi_{sno, sname}(S$$

$$\bowtie SC \bowtie \sigma_{tname = 'Zephyr'}(C))$$

$$8. \pi_{SC1.sno}(\sigma_{SC1.cno < > SC2.cno}(\$$

$$SC1 \bowtie SC2) \bowtie \pi_{sno, sname}(S)$$

$$SC1.sno = SC2.sno$$

$$9. \pi_{S2.sno, S2.sname}(\pi_{sage}(\sigma_{sname = 'Zephyr'}(S1)) \bowtie S2)$$

$$S1.sage < > S2.sage$$

$$10. \pi_{S2.sno, S2.sname}(\pi_{sage}(\sigma_{sname = 'Zephyr'}(S1)) \bowtie S2)$$

$$S2.sname$$

$$11. \pi_{C1.cno, C1.cname}(\sigma_{C2.qpno = null}(C1 \bowtie C2))$$

$$C1.qpno =$$

$$C2.cno$$