1. (1) $\Pi_{class}(\sigma_{BNAME='西游记'}((S \bowtie L) \bowtie B))$

(2) $\Pi_{BNAME}(\sigma_{class='201'}((S \bowtie L) \bowtie B))$

(3) $\Pi_{B\#}(\sigma_{SNAME='刘明'}(S \bowtie L)) - \Pi_{B\#}(\sigma_{SNAME='小李'}(S \bowtie L))$

(4) $\sigma_{BNAME='红楼梦'}(\gamma_{BNAME;count(S\#)}(B \bowtie L))$

2. (1) $\sigma_{D\#='物理'}(S)$

(2) $\Pi_{S\#,SNAME}(\sigma_{D\#='化学'}(S))$

(3) $\Pi_{S\#,SNAME,D\#}(\sigma_{C\#='1002'}(S \bowtie SC)) - \Pi_{S\#,SNAME,D\#}(\sigma_{C\#='1003'}(S \bowtie SC))$

(4) $\Pi_{SNAME}(\sigma_{C\#='1002'}(S \bowtie SC) \cap \sigma_{C\#='1003'}(S \bowtie SC))$

3. (1) $\Pi_{S\#,SNAME}(S \bowtie SC)$

(2) $S \bowtie SC$