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 Read

1. (a) $\forall z B(z) \leftrightarrow \exists y Q(y)$

All printer are busy if and only if some of printer jobs are queued.

(b) $\exists y (Q(y) \wedge L(y)) \rightarrow \neg \forall x F(x)$

If some printer jobs are queued and lost, then not all printer out of service.

(c) $\forall x B(x) \vee (\forall y Q(y) \rightarrow \exists y L(y))$

All printers is busy ~~or~~ ^{IF} all printer jobs is queued then some printer jobs is lost. ~~or~~ ^{or}

2. Let P be the proposition "Siti studies hard alone", q is "She is a lonely girl", and let r be the proposition "She will ~~not~~ have many friends". Then, this argument is of the form

$P \rightarrow q$

$q \rightarrow r$

$\therefore P \rightarrow r$

———— (1)

$q \rightarrow \neg r$ ——— (2)

(1) and (2) under hypothetical syllogism

3. (a) False

(b) True

(c) True

(d) False

4. Negate each of the following statements.

a.) Not all students live in the dormitories.

b.) Not all mathematics major are males.

c.) All students are below 25 years old.

5. (a) $\exists x \exists y E(x, y)$

Some car ~~of x~~ is expensive than
some car ~~of y~~.

(b) $\exists x \neg E(x, \text{Ferrari})$

Some car ~~of x~~ is ^{not} expensive than
Ferrari. *Not all the cars expensive than Ferrari*

(c) $\neg \forall x \exists y E(x, y)$

Not all car ~~of x~~ is expensive than
some car ~~of y~~.

Some cars is expensive than some cars.