d) Efficiency $= \frac{P_{load}}{P_{source}} \times 100\%$

$= \frac{4.855}{8.2} \times 100\%$

$= 59.2\%$

e) Percentage voltage drop $= \frac{V_{source} - V_{load}}{V_{source}} \times 100\%$

$= \frac{8.01 - 3.884}{8.01} \times 100\%$

$= 51.5\%$

6.4 The real power loss in transmission line in 6.3(b) is 2.4219 W which is significantly higher than real power loss in transmission line in 6.2(b) of 0.03038 W. The presence of a step-up transformer significantly reduces the current flowing through the transmission line. Therefore, given $P_{loss} = I_{line}^2 R$, with an increase in the current flowing through the transmission line, the power loss in transmission line increases as can be seen by values of 6.3(b) being larger than that of 6.2(b)

6.5 The efficiency of the system without a transformer is lower than that of a system with a transformer. This is shown by a smaller value of 6.3(d) of 59.2% compared to value of 6.2(d) of 74.7%. As efficiency is measured by taking ratio of power consumed by load to power delivered by the source, with an increase in power loss in transmission line due to lack of a step-up transformer, ~~efficiency~~ power consumed by load in a system without a step-up transformer will be lesser. Hence, the efficiency in 6.3(d) is smaller than that of 6.2(d).

6.6 The percentage voltage drop in 6.3(e) ~~is~~ of 51.5% is larger than that in 6.2(e) of 19.0%. As power consumed by the load is calculated by $P = \frac{V^2}{R}$, without a step-up transformer to reduce power loss, power consumed by the load decreases. As such, since the value of load resistance remains the same, voltage across the load resistor drops more with a lower power consumption of the load. Thus, percentage voltage drop in 6.3(e) is higher than that is 6.2(e)

6.7 With the usage of transformers in power systems, based on results in 6.4