

---

## Table of Contents

Module 18 Alex Yeoh Table 11 .....	1
test 10.79 .....	1
10.72 .....	2
10.78 .....	2
10.80 .....	3
14.65 .....	3
14.83 .....	4

## Module 18 Alex Yeoh Table 11

```
sympref('FloatingPointOutput',true);
```

## test 10.79

```
clear all
syms va vb vo vin s
[va,vo] = solve(-vin/10000-va*0.1e-6*s-va/20000, -va*0.2e-6*s-vo/40000, va,vo)
H(s)=simplify(vo/vin)
```

---

$va =$

$$-(1000*vin)/(s + 500)$$

$vo =$

$$(8.0000*s*vin)/(s + 500)$$

$H(s) =$

$$(8.0000*s)/(s + 500)$$

## 10.72

```
clear all
syms va io vs s
[va,io] = solve((va-vs)/50000+va*1e-9*s+va/100000, va/100000==io, va,io)
H(s) = simplify(io/vs)
```

$va =$

$$(20000*vs)/(s + 30000)$$

$io =$

$$(0.2000*vs)/(s + 30000)$$

$H(s) =$

$$0.2000/(s + 30000)$$

## 10.78

```
clear all
syms va vb vo vin s
[va,vb,vo] = solve((va-vin)/10000+(va-vb)*0.25e-6*s+(va-vb)*0.5e-6*s+(va-vo)/20000, (vb-vb)*0.5e-6*s+vb/10000, vb/20000+(vb-vo)/40000, va,vb,vo)
H(s) = simplify(vo/vin)
```

$va =$

$$0.6667*vin$$

$vb =$

---


$$(1.9677e+18*s*vin)/(2.9515e+18*s + 5.9030e+20)$$

$$vo =$$

$$(5.9030e+18*s*vin)/(2.9515e+18*s + 5.9030e+20)$$

$$H(s) =$$

$$(5.9030e+18*s)/(2.9515e+18*s + 5.9030e+20)$$

## 10.80

```
clear all
syms va vo vs s
[va,vo] = solve(-vs/0.1e-6*s-va/20000-vo/50000,-va/10000-vo*0.2e-6*s, va,vo)
H(s) = simplify(vo/vs)
```

$$va =$$

$$-(5.9030e+29*s^2*vs)/(2.9515e+18*s - 5.9030e+20)$$

$$vo =$$

$$(2.9515e+32*s*vs)/(2.9515e+18*s - 5.9030e+20)$$

$$H(s) =$$

$$(2.9515e+32*s)/(2.9515e+18*s - 5.9030e+20)$$

## 14.65

```
clear all
syms va vo vi r ri rf c s
[va,vo] = solve(va/r+(va-vi)*c*s, va/ri+(va-vo)/rf, va,vo)
H(s)=vo/vi
```

$$va =$$

$$(c*r*s*vi)/(c*r*s + 1)$$

$$vo =$$

$$(c*r*s*vi*(rf + ri))/(ri*(c*r*s + 1))$$

---

$H(s) =$

$(c \cdot r \cdot s \cdot (r_f + r_i)) / (r_i \cdot (c \cdot r \cdot s + 1))$

## 14.83

```
clear all
syms va vo vs s
[va,vo] = solve((va-vs)/10000+(va-vo)/20000+(va-vo)*1e-6*s, (vo-va)/20000+vo*5e-6*s+(vo-va)*1e-6*s, va,vo)
H(s)=vo/vs

va =

(4*vs*(1.1068e+20*s + 9.2234e+20))/(3.6893e+18*s^2 + 6.2719e+20*s + 3.6893e+21)

vo =

(7.3787e+19*vs*(s + 50))/(3.6893e+18*s^2 + 6.2719e+20*s + 3.6893e+21)

H(s) =

(7.3787e+19*(s + 50))/(3.6893e+18*s^2 + 6.2719e+20*s + 3.6893e+21)
```

*Published with MATLAB® R2022b*