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Electrical Engineering EE

Subject	2018
General Aptitude	15
Engg. Maths	11
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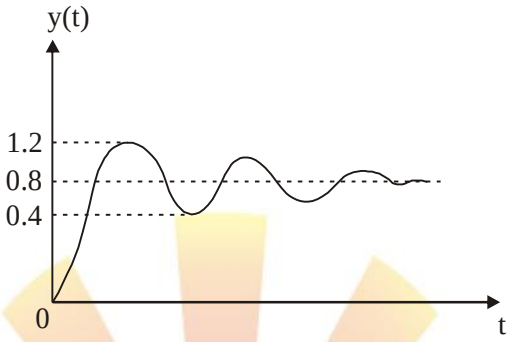
Control Systems	8
Power Systems	10
Power Electronics	10
Signals & Systems	8
Analog Electronics	7
Measurements	4
Digital Electronics & MP	7

1. A step response of a negative unity feedback system with open loop transfer function $G(s) = \frac{K}{(s+1)^2(s+2)}$ is shown in figure.

The value of K is _____



Sol. **K = 8**

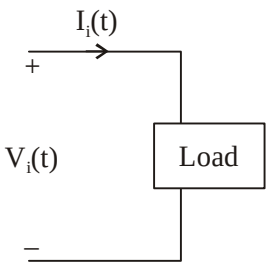
2. Consider a open loop transfer function $G(s) = \frac{1}{(s+1)(s+2)}$ with negative unity feedback system the steady state error in output for an unit step input is

Sol. **0.67**

3. Given $V_i(t) = 5 - 10\cos(\omega t + 60°)$

$I_i(t) = 5 + X\cos(\omega t)$

The value of X in amp such that the average power on the load is zero



Sol. **10 Amp**

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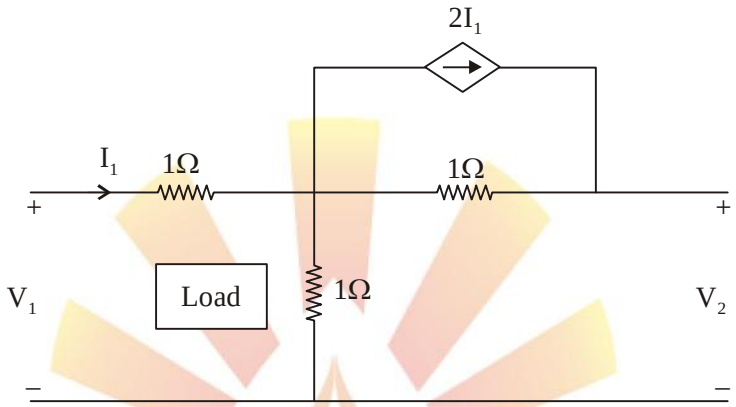
4. A parallel RC connection with Series on inductor value of R = 100Ω , C = 100 μF. If power factor is unity at ω = 100 rad./sec. The equivalent Z_{in} in ohm will be –

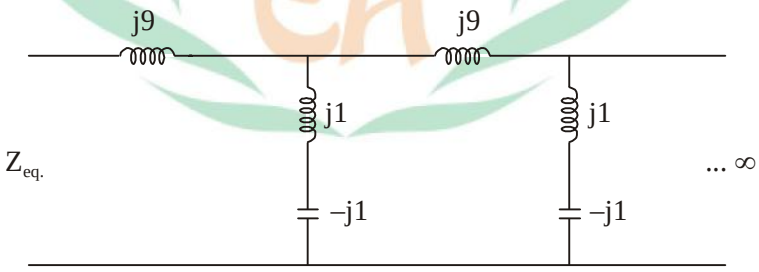
Sol. **50 Ω**

5. Consider two port network shown in below figure, the value of $h_{11} = \left.\frac{V_1}{I_1}\right|_{V_2 = 0}$ in Ohm is



Sol. **0.5 Ω**

6. Consider a reactive ladder infinite network as shown below :-



The value of magnitude of $Z_{eq.}$ for infinite network in ohm will be :-

Sol. **12 Ω**

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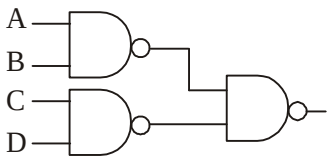
7.



The output of Y is

Sol. **Y = A + B + C + D**

8. A network consists 5 loop equation and 8 mode calculation number of branch in the network

(a) 11 (b) 12

(c) 15 (d) 14

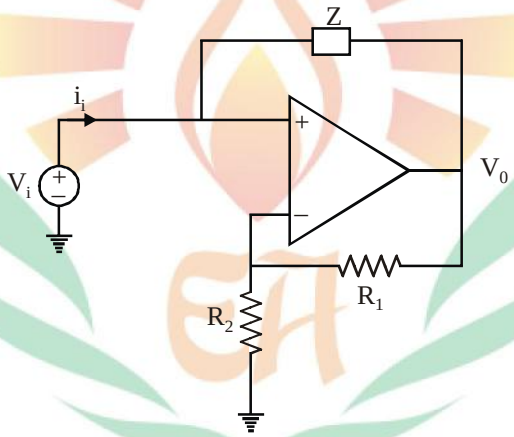
Sol.

$$l = b - (n - 1)$$

$$5 = b - (8 - 1)$$

$$b = 12$$

9.



Calculate the ratio of $\left(\frac{V_i}{i_1}\right)$

(a) $\left(1+\frac{R_1}{R_2}\right)Z$ (b) $-\left(\frac{R_1}{R_2}\right)Z$

(c) $-\left(\frac{R_1}{R_1}\right)Z$ (d) $\left(\frac{R_1}{R_1}\right)Z$

Sol. (c)

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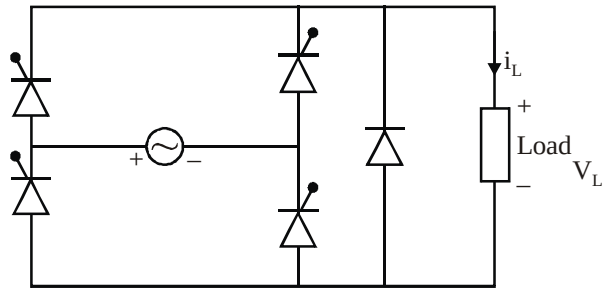
10. In shown figure thyristor are connected amtiparallell to the load.



then

(a) $V_L < 0, i_L > 0$

(b) $V_L < 0, i_L < 0$

(c) $V_L > 0, i_L < 0$

(d) $V_L < 0, i_L > 0$

Sol. (a)

11. A (0–1) A ammeter having 50mΩ resistance and 10 mH inductance. If this ameeter is conurted in (0–10) A ammeter then what value of resistance connected in shunt and also time period of instrument.

(a) 5.55 mΩ, 2 sec

(b) 4.55 mW, 0.2 sec

(c) 5.55 mΩ, 0.2 sec

(d) None of these

Sol. (a)

❑❑❑