國立中正大學
112學年度碩士班招生考試
試 題

[第1節]

科目名稱	電磁學
系所組別	電機工程學系-電磁晶片組

－作答注意事項－

※作答前請先核對「試題」、「試卷」與「准考證」之系所組別、科目名稱是否相符。

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5. 試卷作答限用藍色或黑色筆（含鉛筆）書寫。
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國立中正大學 112 學年度碩士班招生考試試題

科目名稱：電磁學　　本科目共 2 頁　第 1 頁

系所組別：電機工程學系-電磁晶片組

1. (5%) Find ∇V for the scalar function $V = 2r^2\cos^2\phi$.

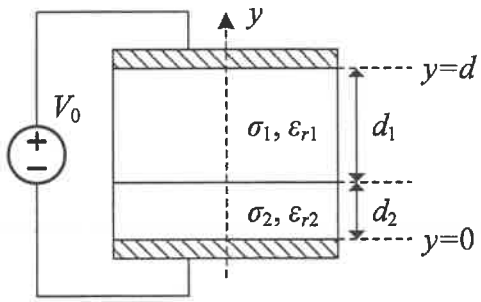


Fig. 1

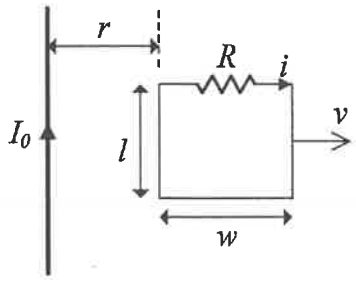


Fig. 2

2. (15%) An dc voltage V_0 is applied across a parallel-plate capacitor of area S as shown in Fig. 1. The space between the metal plates is filled with two different lossy dielectrics of thickness d_1 and d_2, dielectric constants ε_{r1} and ε_{r2}, and conductivities σ_1 and σ_2, respectively. Given $V_0 = 5$ V, $d_1 = 1$ mm, $d_2 = 0.5$ mm, $\sigma_1 = 2$ S/m, $\sigma_1 = 5$ S/m, $\varepsilon_{r1} = 4.4$ and $\varepsilon_{r2} = 2.2$, respectively, determine
   (a) (3%) The current density $\boldsymbol{J}$ between the plates.
   (b) (4%) The electric field intensities $\boldsymbol{E}$ in both dielectrics.
   (c) (4%) The surface charge densities on the metal plates
   (d) (4%) The surface charge density at the interface.

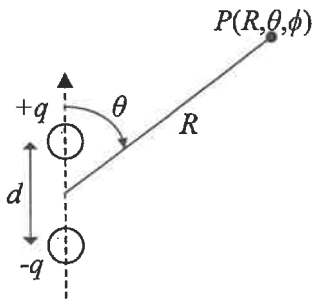


Fig. 3

3. (10%) Given a 4.0 cm radius solid wire centered on the z-axis with a volume current density $\boldsymbol{J} = \boldsymbol{a}_z 8r$ A/cm^3 (for r in cm), calculate and plot the magnetic field intensity $\boldsymbol{H}$ versus radial distance from the z-axis over the range $0 \le r \le 10$ cm.

4. (10%) A rectangular loop is moving with velocity v radially away from a wire that carries a dc current I_0 as shown in Fig. 2. Determine:
   (a) (5%) The magnetic flux through the loop as a function of time.
   (b) (5%) An expression for the current induced in the loop as a function of time.

5. (10%) An electric dipole as shown in Fig. 3 consists of positive charge $+q = 10e$ and negative charge $-q = -10e$ with a small separation of 5×10^{-12} m, where $e = 1.6\times10^{-19}$ C is the elementary charge. Find:
   (a) (3%) The dipole moment of the electric dipole.

(b) (3%) The electric potential V at P as $R \gg d$ in terms of spherical coordinates.

(c) (4%) The electric field intensity $\boldsymbol{E}$ at P as $R \gg d$ in terms of spherical coordinates.

6. (24%) An EM-wave (frequency= 1×10^9 Hz) traveling in a dielectric medium (medium-1) impinges normally upon a perfect conductor (medium-2). Figure below shows the magnitude plot of E-field standing waves generated in medium-1

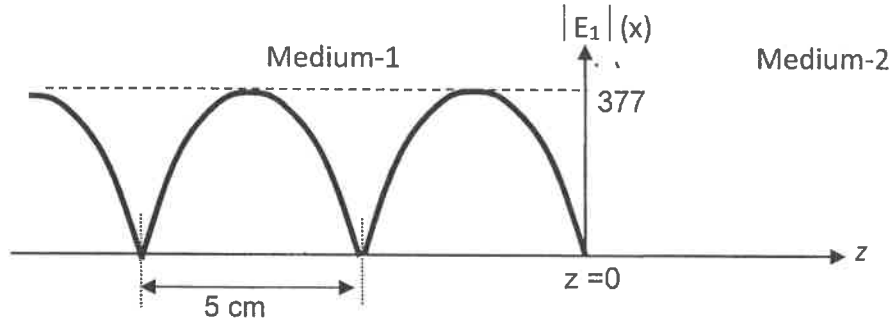


Fig. 4

(a) (3%) Find the standing wave ratio (SWR)

(b) (3%) Determine the wavelength λ of this wave.

(c) (3%) Find the propagation velocity v_p.

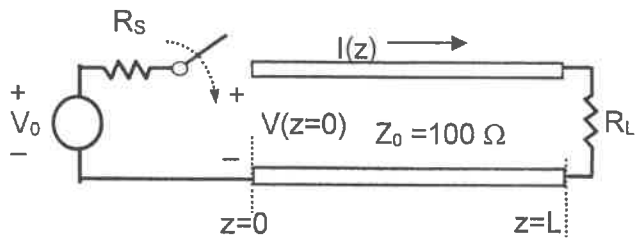
(d) (3%) Determine the propagation constant β of this wave.

(e) (3%) What is the dielectric constant of medium-1?

(f) (3%) What is the characteristic impedance of medium-1?

(g) (6%) Find the mathematical expressions for the incident E-field and H-field.

7. (26%) A 100-Ohm dielectric-filled (ε_r=2) transmission line is excited by connecting it to the voltage source at t = 0 shown as below. The voltage V(z=0, t) observed at the input of the line is given by :



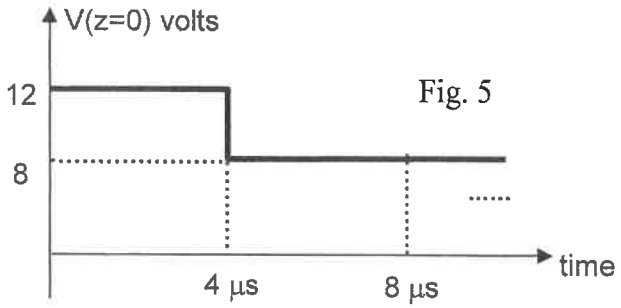


Fig. 5

(a) (3%) What is the length L of this line?

(b) (3%) What is the value of the load R_L?

(c) (3%) What is the value of the load R_S?

(d) (3%) What is the value of generator voltage V_0?

(e) (3%) What is the capacitance C per meter of this transmission line?

(f) (5%) Plot the bounce (Reflection) diagram (Time vs. z).

(g) (6%) Plot voltage vs. time observed at z = 0.4L.

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試 題

[第1節]

科目名稱	計算機組織
系所組別	電機工程學系－計算機工程組 晶片系統組

－作答注意事項－

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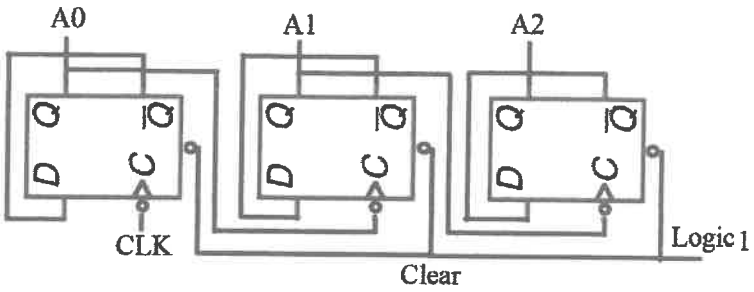
國立中正大學 112 學年度碩士班招生考試試題

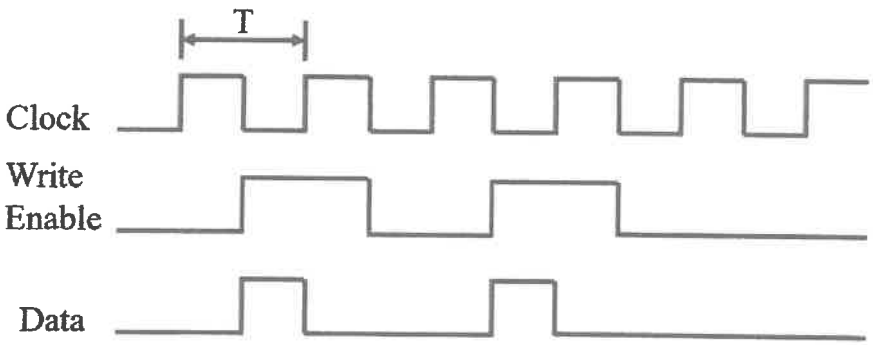
科目名稱：計算機組織　　本科目共 2 頁　第 1 頁

系所組別：電機工程學系-計算機工程組、晶片系統組

1. (20%) An engineer designs a watching dog timer for MIPS platform using D type flip-flops as follows. With the initial condition $(Q,\bar{Q}) = (1,1)$, what are the outputs from A0 to A2 at 5th positive clock edge? Why?



2. (20%) A timing sequence for writing data to the memory is as shown below. Please re-draw a timing sequence with the conditions of (a) memory is triggered by clock's positive edge, (b) write enable is high level triggered, (c) data's hold time is 3/4 T, (d) data's setup time is 1/2 T.



3. (20%) Assume two different CPUs designs running with the same instruction set architecture as shown below. The CPU1 is with a clock rate of 2.5 GHz, and the CPU2 is with a clock rate of 3 GHz. Given a program with a dynamic instruction count of 1.0E6 instructions divided into classes as follows: 10% class A, 20% class B, 50% class C, and 20% class D.

   (a). (10%) Please provide the global CPI for each case?

   (b). (10%) What is the clock cycles required for each CPU design?

	CPI for each instruction class			
	A	B	C	D
CPU1 CPI	1	2	3	3
CPU2 CPI	2	2	2	2

4. (20%) Assume the instructions are as follows, and the bne is determined at the output of the register file.
   (a). (10%) Please plot the MIPS five-stage pipeline sequence diagram without forwarding. (10%)
   (b). (10%) Please re-plot the diagram of question (a) with forwarding. (10%)

```
add  $10, $21, $9
lw   $9,  20($10)
bne  $10, $9, 1000
```

5. (20%) Translate the following loop into C. Assume that the C-level integer *i* is held in register $t1, $s2 holds the C-level integer called *result*, and $s0 holds the base address of the integer *MemArray*.

```
        addi  $t1,  $0,    0
LOOP:   lw    $s1,  0 ($s0)
        add   $s2,  $s2,   $s1
        addi  $s0,  $s0,   4
        addi  $t1,  $t1,   1
        slti  $t2,  $t1,   100
        bne   $t2,  $s0,   LOOP
```

國立中正大學
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試 題

[第1節]

科目名稱	電路學
系所組別	電機工程學系-電力與電能處理甲組

—作答注意事項—

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國立中正大學 112 學年度碩士班招生考試試題

科目名稱：電路學　　本科目共 2 頁　第 1 頁

系所組別：電機工程學系-電力與電能處理甲組

1. For maximum power transfer, what is the value of R_L? and the max power P_{max} on R_L? (20%)

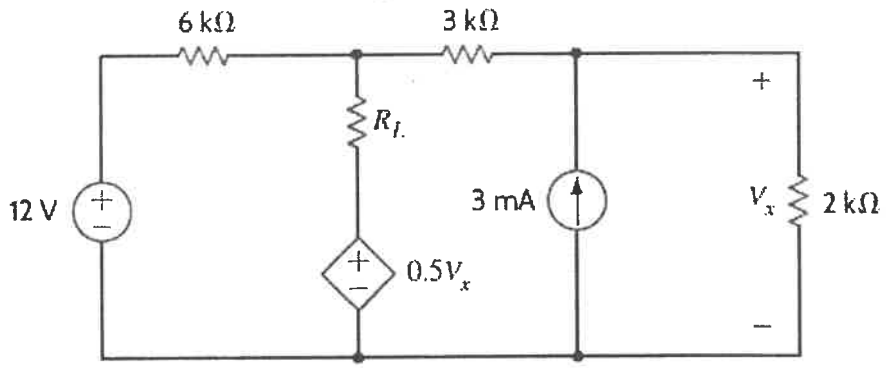

Fig.1

2. In Fig.2, when t>0, Find the transient voltage equation of *Vo(t)*? (20%)

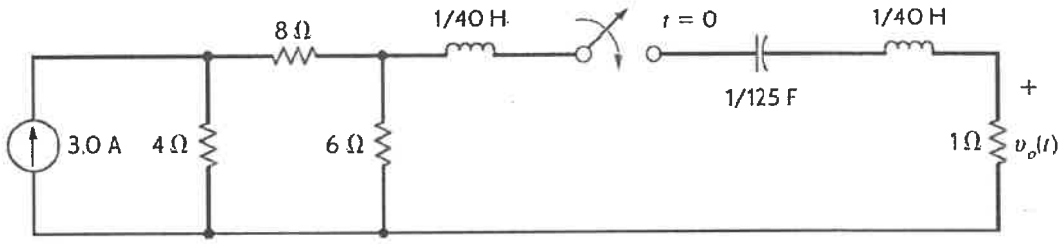

Fig. 2

3. In Fig.3, when t>0, find the transient current equation of $i_L(t)$? (20%)

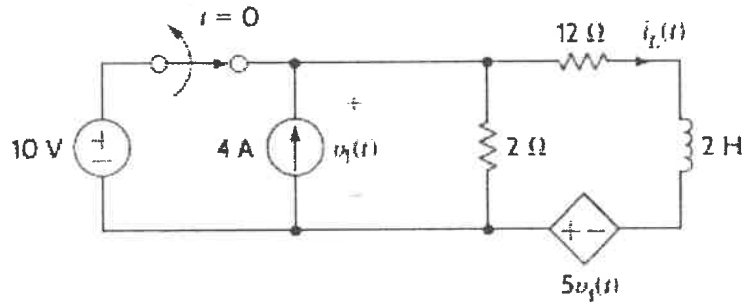

Fig. 3

4. In Fig. 4, determine the value of the inductance *L* such that the current is in phase with the source voltage *Vs* = 13 cos (600t + 85°) V. (20%)

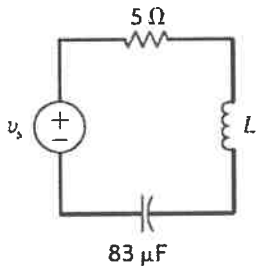

Fig.4

5. In Fig. 5, please find I_o? (20%)

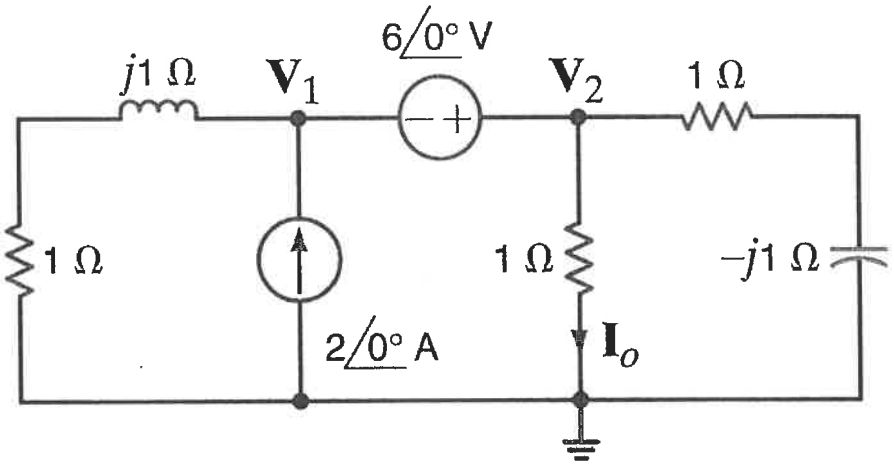

Fig. 5

國立中正大學
112學年度碩士班招生考試
試 題

[第 1 節]

科目名稱	控制系統
系所組別	電機工程學系-電力與電能處理甲組

－作答注意事項－

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國立中正大學 112 學年度碩士班招生考試試題

科目名稱：控制系統　　本科目共 1 頁　第 1 頁

系所組別：電機工程學系-電力與電能處理甲組

1. (20 %) The block diagram of a feedback control system is shown in Fig. 1.

(a) The controller with the transfer function $H(s)$ is for the reduction of the effect of the noise $N(s)$. Find $H(s)$ so that the output $Y(s)$ is totally independent of $N(s)$.

(b) If the maximum overshoot of the unit-step input and the peak time are 10 % and 0.1 sec, respectively. Find the gains F_1 and F_2 when $H(s)$ is as determined in part (a).

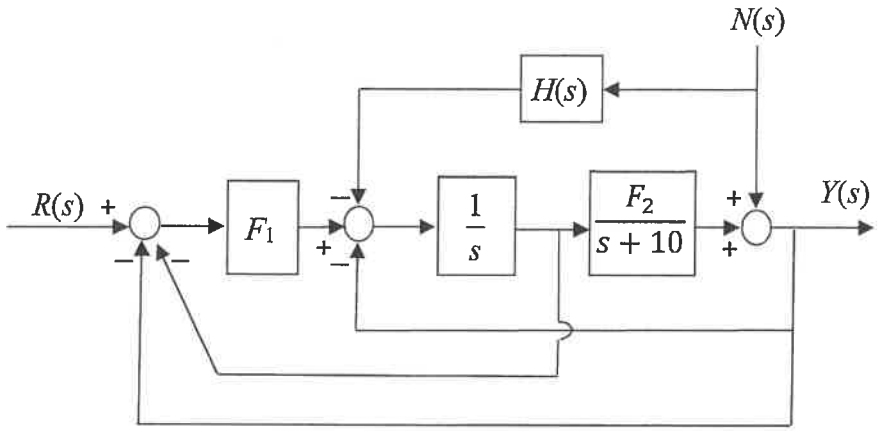

Fig. 1

2. (40 %) The transfer function of a unity feedback control system is

$$G(s) = \frac{F}{s(s+1)(s+5)}$$

(a) Using the Routh-Hurwitz criterion, determine how many roots of the characteristic equation are to the left of the line $s = -1$ in the s-plane for $F = 10$.

(b) Determine if the point $s = -7$ is a point on the loci of roots of the characteristic equation for $F \geq 0$. Use the angle criterion to test this point. If it is a point on a root locus, determine the value of F at this point by using the magnitude criterion.

(c) Using the Nyquist criterion only, find the number of poles of the closed-loop transfer function in the right half-plane, if $F = 5$.

(d) Find the value of F so that the phase margin of the system is 45°.

3. (40%) Given the system $\frac{dx(t)}{dt} = Ax(t) + Bu(t), \quad y(t) = Cx(t)$

where $A = \begin{bmatrix} -1 & 5 \\ -6 & 0 \end{bmatrix}$, $B = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$, $C = [1 \quad 0]$.

(a) Determine the controllability and observability of the system.

(b) Let $u(t) = r(t) - Fx(t)$, where $F = [F1 \quad F2]$ and $r(t)$ is the reference input. Determine if and how controllability and observability of the closed-loop system are affected by the elements of F.

(c) Find the value of $F1$ and $F2$ such that ξ=0.707 and ω_n=10 rad/sec.

(d) Find the locus in the $F1$-versus-$F2$ plane ($F1$= vertical axis) on which the steady-state error due to a unit-step input is zero.

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112學年度碩士班招生考試
試 題

[第2節]

科目名稱	電子學
系所組別	電機工程學系－電磁晶片組 計算機工程組 晶片系統組

－作答注意事項－

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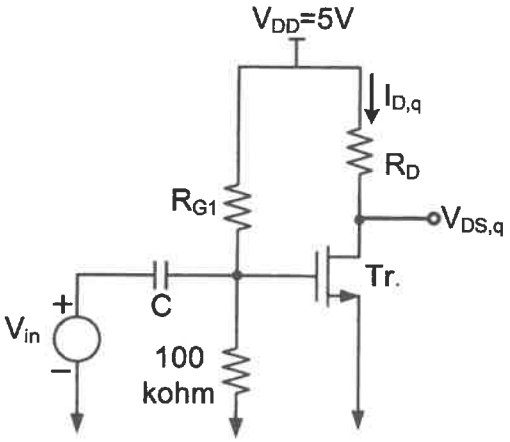
國立中正大學 112 學年度碩士班招生考試試題

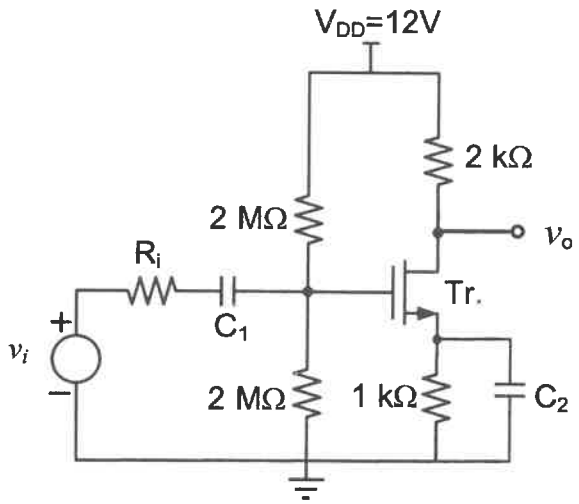
科目名稱：電子學　　本科目共 4 頁　第 1 頁

系所組別：電機工程學系-電磁晶片組、計算機工程組、晶片系統組

1. (10%) In the following circuit, the transistor Tr. operates with V_T=0.5 V, $\mu_n C_{OX} W/2L$=0.2 mA/V^2, and no channel length modulation effect should be considered.
   Please properly choose (a) (5%) R_D and (b) (5%) R_{G1} to let the mid-band voltage gain become −4 as $V_{DS,q}$ being 2 V

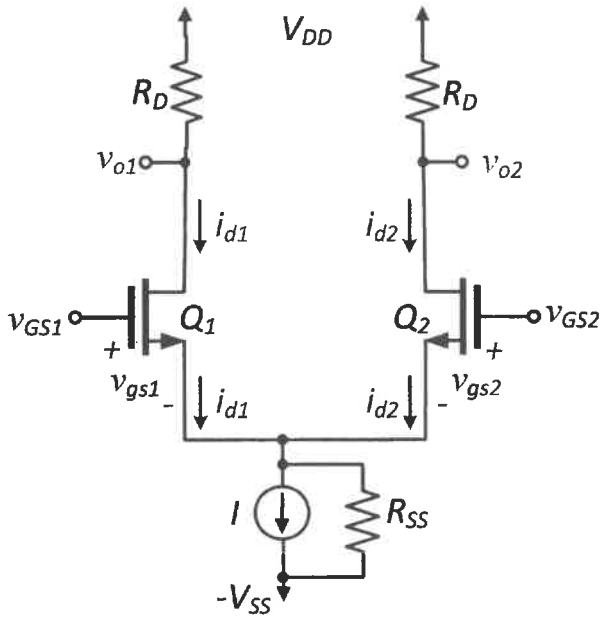


2. (15%) For a common-source MOSFET amplifier, the transistor Tr. has V_T = 1V, $\mu_n C_{OX} W/L$== 0.2 mA/V^2, C_{gs}= 3 pF, C_{gd}= 2.5 pF and V_A= 20 V, and no channel length modulation effect should be considered. Both of coupling capacitors (C_1 and C_2) are large enough to be short circuits at high frequency
   (a) (5%) What is the 3dB bandwidth if R_i= 0
   (b) (5%) Find the 3dB bandwidth if R_i=10 kΩ.
   (c) (5%) What kind of roles are played by C_1 and C_2?



3. (25%) A MOS differential amplifier with ±1-V supplies and 1 mW maximum quiescent power dissipation to provide the differential voltage gain A_d of which being 10 V/V .
   (a) (5%)What is the required V_{ov} to support the input differential signal v_{id} (=v_{GS1}- v_{GS2}) being 0.25 V.
   (b) (5%)What's the transconductance of Q_1 and Q_2?
   (c) (5%)Please explain the role of R_D and the limitation to choose its value?
   (d) (5%)Assume k'_n = 500 μA/V^2, to specify the required aspect ratio (W/L) as neglecting the Early effect.

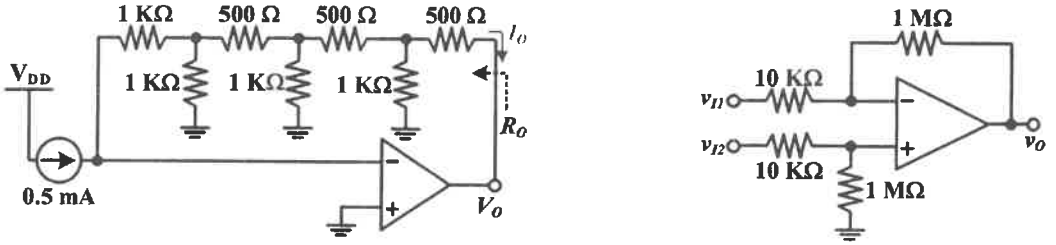
(e) (5%)Please summarize the effects of R_{SS} happened to differential voltage gain A_d and common-mode voltage gain A_{CM}.



4. Fig. P4 shows two applications of op amp. Assuming the op amps used in Fig. P4 are ideal, please answer the following questions:

   (1) Find the I_O and R_O indicated in Fig. P4(a). (5%)

   (2) If the op amp used in Fig. P4(b) has offset voltage (V_{OS}) of 4 mV, input bias current (I_B) of 1 μA, and input offset current (I_{OS}) of 0.1 μA, find the largest dc offset voltage at the output. (10%)



(a)　　(b)

Fig. P4

5. Fig. P5 shows a feedback amplifier, where transistors M_1, M_2, and M_3 are biased at saturation region with a bias current of 0.2 mA and an overdrive voltage of 0.4 V. Meanwhile, each current source is implemented using single transistor so that contributes an output resistance. Assume that $|V_A| = 20$ V for all transistors, please find the close-loop gain (v_o/v_i). (20%)

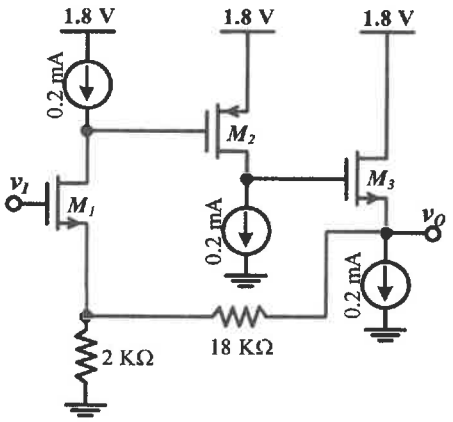


Fig. P5

6. The CMOS logic gate shown in Fig. P6 drives a load capacitance of 10 fF, where the input waveforms are periodic with a cycle time of 1 ns. Please determine the dynamic power dissipation when the logic gate drives the load capacitance with ignoring the short circuit current. (8%)

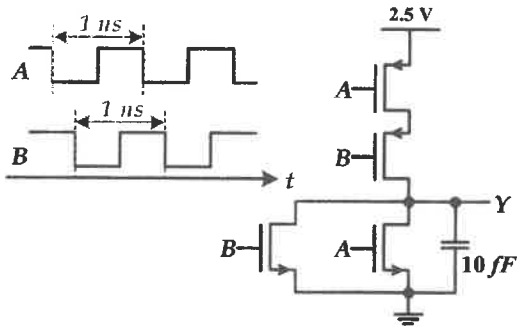


Fig. P6

7. The CMOS inverter shown in Fig. P7 is fabricated using the following parameters: $V_{TH,n} = |V_{TH,p}| = 0.5$ V, $2\mu_p C_{ox} = \mu_n C_{ox} = 100\ \mu A/V^2$, please find the output voltage of V_Y. (7%)

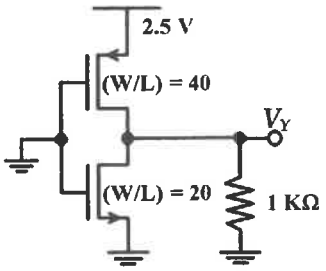


Fig. P7

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試 題

[第2節]

科目名稱	線性代數與微分方程
系所組別	電機工程學系－電磁晶片組 電機工程學系－計算機工程組 電機工程學系－電力與電能處理甲組

－作答注意事項－

※作答前請先核對「試題」、「試卷」與「准考證」之系所組別、科目名稱是否相符。

1. 預備鈴響時即可入場，但至考試開始鈴響前，不得翻閱試題，並不得書寫、畫記、作答。
2. 考試開始鈴響時，即可開始作答；考試結束鈴響畢，應即停止作答。
3. 入場後於考試開始40分鐘內不得離場。
4. 全部答題均須在試卷（答案卷）作答區內完成。
5. 試卷作答限用藍色或黑色筆（含鉛筆）書寫。
6. 試題須隨試卷繳還。

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第一部分：線性代數

Let $\mathbf{A}=[\mathbf{A}^{(1)}\ \mathbf{A}^{(2)}\ \mathbf{A}^{(3)}]=\begin{bmatrix}1&0&0\\0&2&0\\1&0&2\end{bmatrix}$, where $\mathbf{A}^{(1)}$, $\mathbf{A}^{(2)}$ and $\mathbf{A}^{(3)}$ are ordered column vectors of **A**,

$\mathbf{B}=[\mathbf{B}^{(1)}\ \mathbf{B}^{(2)}\ \mathbf{B}^{(3)}]=\begin{bmatrix}2&0&2\\0&1&0\\0&0&1\end{bmatrix}$, where $\mathbf{B}^{(1)}$, $\mathbf{B}^{(2)}$ and $\mathbf{B}^{(3)}$ are ordered column vectors of **B**, and

$\mathbf{I}_3=[\mathbf{e}_1\ \mathbf{e}_2\ \mathbf{e}_3]=\begin{bmatrix}1&0&0\\0&1&0\\0&0&1\end{bmatrix}$, where $\mathbf{e}_1$, $\mathbf{e}_2$ and $\mathbf{e}_3$ are ordered column vectors of $\mathbf{I}_3$.

1. Show your answers with details
   a. (5 pts.) The geometry multiplicities of **A**.
   b. (5 pts.) The product of all eigenvalues in **B**.
   c. (15 pts.) The solution of $\mathbf{A}[x_1\ x_2\ x_3]^T=[1\ 2\ 3]^T$ with Cramer's rule.

2. In $\boldsymbol{R}^3$, fine the results with details.
   a. (5 pts.) The coordinate vector with the basis $\underline{A}=\{\mathbf{A}^{(1)}, \mathbf{A}^{(2)}, \mathbf{A}^{(3)}\}$ corresponding to $(1\ 2\ 3)_{\underline{e}}$ with the standard basis $\underline{e}=\{\mathbf{e}_1, \mathbf{e}_2, \mathbf{e}_3\}$.
   b. (10 pts.) The coordinate vector with the basis $\underline{A}=\{\mathbf{A}^{(1)}, \mathbf{A}^{(2)}, \mathbf{A}^{(3)}\}$ corresponding to $(1\ 2\ 3)_{\underline{B}}$ with the basis $\underline{B}=\{\mathbf{B}^{(1)}, \mathbf{B}^{(2)}, \mathbf{B}^{(3)}\}$.
   c. (10 pts.) The transition matrix from the standard basis $\underline{B}=\{\mathbf{B}^{(1)}, \mathbf{B}^{(2)}, \mathbf{B}^{(3)}\}$ to $\underline{A}=\{\mathbf{A}^{(1)}, \mathbf{A}^{(2)}, \mathbf{A}^{(3)}\}$.

第二部分：微分方程

(單一選擇題，每題5分，答錯一題，倒扣2分，共十題合計50分)

1. The differential equation $y'-\frac{y}{x}=y^2$ can be solved using the substitution

Select the correct answer.

a. $u=y$
b. $u=y^2$
c. $u=y^3$
d. $u=y^{-1}$
e. $u=y^{-2}$

2. Solve the problem $y'=(x+1)y,\ y(0)=1$ numerically for $y(0.2)$ using step size of h=0.1.

Select the correct answer.

a. 1.1
b. 1.11
c. 1.2
d. 1.21
e. 1.221

3. The solution of the differential equation $x^2y''-5xy'+5y=0$ is

Select the correct answer.

a. $y=c_1x+c_2x^2$
b. $y=c_1x\cos(lnx)+c_2x^2\sin(lnx)$
c. $y=c_1x\cos(2lnx)+c_2x^2\sin(2lnx)$
d. $y=c_1x^{\frac{(5+\sqrt{5})}{2}}+c_2x^{\frac{(5-\sqrt{5})}{2}}$
e. $y=c_1e^{2x}+c_2xe^{2x}\sin x$

4. Write the differential equation for *RLC* series electrical circuit if L=0.25 H, R=10 Ω, and C=0.001 F, and $E(t)$=0.

Select the correct answer.

a. $\frac{1}{4}\frac{d^2q}{dt^2}+10\frac{dq}{dt}+1000q=0$

b. $\frac{1}{4}\frac{d^2q}{dt^2}+10\frac{dq}{dt}+\frac{1}{1000}q=0$

c. $\frac{1}{4}\frac{d^2q}{dt^2}+10\frac{dq}{dt}+1000q=100$

d. $\frac{d^2q}{dt^2}+10\frac{dq}{dt}+1000q=\frac{1}{4}$

e. $\frac{1}{4}\frac{d^2q}{dt^2}+\frac{dq}{dt}+1000q=10$

5. In the previous problem, find the charge q(t) on the capacitor in an *RLC* series circuit if $q(0)$=5 C, and $i(0)$=0 A .

Select the correct answer.

a. $q(t)=\frac{5\sqrt{10}}{3}e^{-20t}\sin(60t+1.249)$

b. $q(t)=\frac{5\sqrt{10}}{3}e^{-10t}\sin(60t+1.249)$

c. $q(t)=\frac{\sqrt{10}}{3}e^{t}\sin(60t+1.249)$

d. $q(t)=\frac{5\sqrt{10}}{3}e^{20t}\sin(60t+1.249)$

e. $q(t)=\frac{5\sqrt{10}}{3}e^{-20t}$

6. The particular solution of $X'=\begin{bmatrix}2 & 3\\ 2 & 1\end{bmatrix}X+\begin{bmatrix}t\\ 1\end{bmatrix}$ is

Select the correct answer.

a. $\begin{bmatrix}\frac{t}{4}+\frac{19}{16}\\ -\frac{t}{2}+\frac{7}{8}\end{bmatrix}$

b. $\begin{bmatrix}\frac{t}{4}-\frac{19}{16}\\ -\frac{t}{2}+\frac{7}{8}\end{bmatrix}$

c. $\begin{bmatrix} \frac{t}{4}+\frac{1}{8} \\ -\frac{t}{2}-\frac{7}{8} \end{bmatrix}$

d. $\begin{bmatrix} \frac{t}{4}-\frac{1}{8} \\ -\frac{t}{2}-\frac{7}{8} \end{bmatrix}$

e. None of the above

7. The Fourier series of the function $f(x) = x^2$ on [-1, 1] is
Select the correct answer.

a. $\sum_{n=1}^{\infty} \frac{4(-1)^n \sin(n\pi x)}{n^2\pi^2} + \sum_{n=1}^{\infty} \frac{4(-1)^n \cos(n\pi x)}{n^2\pi^2}$

b. $\sum_{n=1}^{\infty} \frac{4(-1)^n \sin(n\pi x)}{n^2\pi^2}$

c. $\sum_{n=1}^{\infty} \frac{4(-1)^n \cos(n\pi x)}{n^2\pi^2}$

d. $\frac{1}{3} + \sum_{n=1}^{\infty} \frac{4(-1)^n \sin(n\pi x)}{n^2\pi^2}$

e. $\frac{1}{3} + \sum_{n=1}^{\infty} \frac{4(-1)^n \cos(n\pi x)}{n^2\pi^2}$

8. The general solution of $y''+n^2\pi^2 y = 0,\ y(0) = 0,\ y(1) = 1,\ n = 1, 2, 3, \ldots$, is
Select the correct answer.

a. $y = 0$

b. $y = c \cdot \sin(n\pi x)$

c. $y = c \cdot \cos(n\pi x)$

d. $y = c(e^{n\pi x} - e^{-n\pi x})$

e. $y = c(e^{n\pi x} + e^{-n\pi x})$

9. When the Laplace transform is applied to the problem
$y''+2y'+y = e^{3t},\ y(0) = 1,\ y'(0) = 2$, the resulting transformed equation is
Select the correct answer

a. $(s^2+2s+1)Y = -s-4+\frac{1}{s-3}$

b. $(s^2+2s+1)Y = s-4+\frac{1}{s-3}$

c. $(s^2+2s+1)Y = s+4+\frac{1}{s+3}$

d. $(s^2+2s+1)Y = -s-4+\frac{1}{s+3}$

e. $(s^2+2s+1)Y = s+4+\frac{1}{s-3}$

10. The solution of the initial value problem in the previous problem is
Select the correct answer

a. $y = \frac{15e^t+44te^t+e^{3t}}{16}$

b. $y = \frac{15e^t-44te^t+e^{3t}}{16}$

c. $y = \frac{15e^{-t}+44te^{-t}+e^{3t}}{16}$

d. $y = \frac{15e^{-t}-44te^{-t}+e^{3t}}{8}$

e. $y = \frac{15e^{-t}+44te^{-t}+e^{3t}}{8}$

國立中正大學
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試 題

[第2節]

科目名稱	資料結構
系所組別	電機工程學系-計算機工程組

—作答注意事項—

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國立中正大學 112 學年度碩士班招生考試試題

科目名稱：資料結構　　本科目共 1 頁　第 1 頁

系所組別：電機工程學系-計算機工程組

1. Binary Search Tree (BST)

Complete the breadth first traversal on a BST using a queue. Answer the following questions.

i. (5 points) Draw a diagram to the design of your queue and explain how you can apply the concept of ADT (abstract data type) in your design. Explain your strategy of using a queue to perform the breadth first traversal.

ii. (5 points) Define the data structures of the queue described above using C or pseudo code.

iii. (15 points) Define the following operations to the queue:

1) NewQ: to create and initialize a queue to use.
2) EnQ: to perform enqueue
3) DeQ: to perform dequeue

iv. (10 points) Define a function which performs the breadth first traversal on a BST. Use C or pseudo code to complete your answer. Be sure to define the function header and local variables clearly.

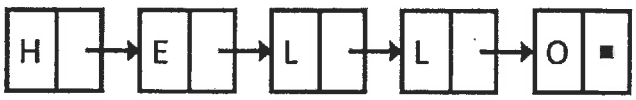
2. Sorting

i. (15 points) Define the function to perform the **Selection Sort** on an integer array. The sorted array is in ascending order. Use C or pseudo code to complete your answer. Be sure to define the function header and local variables clearly.

ii. (10 points) Analyze the time complexity of the function above and show the result in the Big-O notation. Be sure to show the steps of analysis with your explanation and the associated detail calculation.

3. Application

Consider a string defined by a linked list of characters illustrate here, in which a string "HELLO" is represented. For the questions below, use C or pseudo code to complete your answers. Be sure to define the function header and local variables clearly.



i. (5 points) Design the data structure of a node with a field storing a single character and a pointer to the next node.

ii. (15 points) Write the function to perform string comparison on two such strings.

iii. (10 points) Write the function to perform string copy to produce a new string based on a given string. Be sure to create a new string and not just having a pointer pointing to the given string.

iv. (10 points) Write the function to free the memory of all nodes in a given list.