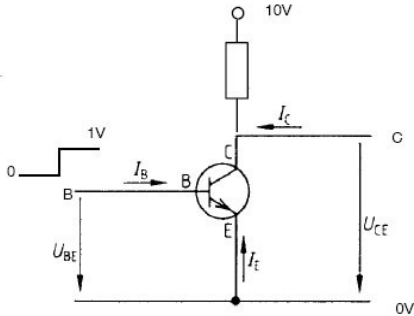
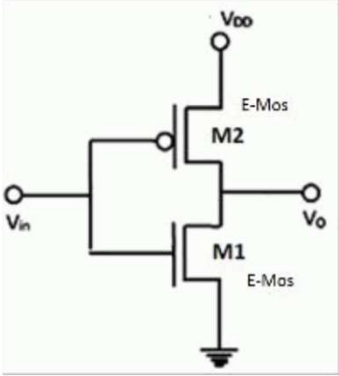
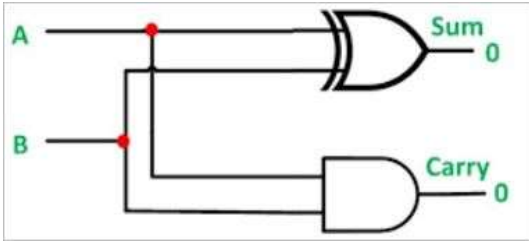


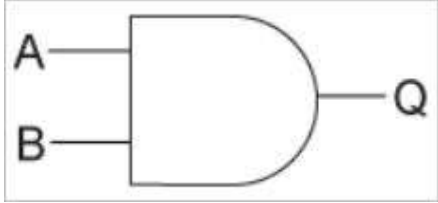
(M04)基礎電子學：

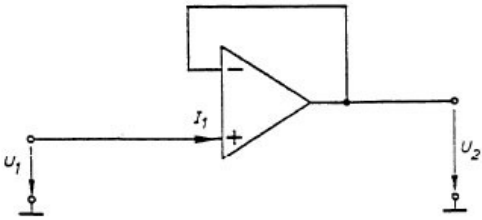
題號	答案	題目
1 0020616	A	<p>Which of the following statements is correct about the LED? (A)it is used as a general-purpose indicator (B)it is ideal for use as a voltage regulator (C)a reverse-biased is used for normal operation</p> <p>下列有關於發光二極體之敘述何者正確？(A)可當一般用途之指示燈 (B)它適用在穩壓電路 (C)正常工作於逆向電壓</p>
2 0020542	B	<p>The region in a P-N junction diode where no free charge carriers exist is known as the: (A)collector (B)depletion region (C)enhancement region</p> <p>在P-N接面二極體中有一區域沒有自由電荷載子存在，稱作？(A)集極 (B)空乏區 (C)加強區</p>
3 0048003	A	<p>In a PNP transistor, conventional current will flow when. (A)the emitter is more positive than the base. (B)the base is more positive than the emitter. (C)the collector is more positive than the emitter.</p> <p>在PNP電晶體內，常見的電流會流通是當：(A)射極電壓大於基極電壓 (B)基極電壓大於射極電壓 (C)集極電壓大於射極電壓</p>
4 0020552	A	<p>In normal operation of a bipolar junction transistor the: (A)base-emitter junction is forward biased and the collector-base junction is reverse biased (B)base-emitter junction is reverse biased and the collector-base junction is forward biased (C)both junctions are forward biased</p> <p>在雙極性接面電晶體之一般工作狀態？(A)基射極順向偏壓以及集基極逆向偏壓 (B)基射極逆向偏壓以及集基極順向偏壓 (C)二個接面皆順向偏壓</p>
5 0026860	A	<p>What kind of components can be integrated in integrated circuits? (A)resistors, capacitors and transistors (B)transistors and coils only (C)relays and switches</p> <p>什麼樣的組件可以整合集成在積體電路？(A)電阻，電容和電晶體 (B)只有電晶體和線圈 (C)繼電器和開關</p>

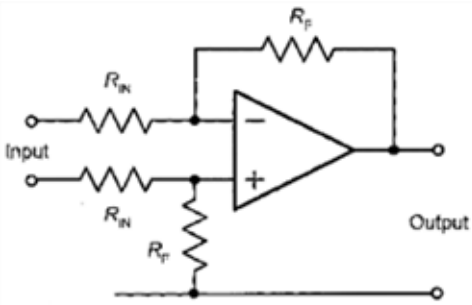
題號	答案	題目
6 0026851	C	<p>What is the expected voltage change at the output C, when the voltage at the base changes from 0V to 1V? (A) The voltage will change from 2 0V to 10V. (B) The voltage will stay at 10V. (C) The voltage will change from 10V to 0V.</p> <p>何者是輸出點C預期的電壓變化？當基極的電壓從0伏特變成1伏特時。(A) 輸出電壓會從0伏特變成10伏特 (B) 輸出電壓一直會保持在10伏特 (C) 輸出電壓會從10伏特變成0伏特</p> 
7 0048292	A	<p>What special type of diode is capable of both amplification and oscillation? (A) Point contact diodes. (B) Zener diode (C) light-emitting diode</p> <p>哪種特殊類型二極體能具有放大和振盪？(A) 點接觸二極體 (B) 積納二極體 (C) 發光二極體</p>
8 0048006	B	<p>The resistance measured using an AVO between the Collector and Emitter of a transistor is. (A) low resistance looking into Collector and high resistance looking into Emitter. (B) high resistance looking both ways. (C) low resistance looking into Emitter and high resistance looking into Collector.</p> <p>使用三用電表測量電晶體的集極和射極之間的電阻，其特性為：(A) 由集極端看進去為低電阻、由射極端看進去為高電阻 (B) 由兩端看進去皆為高電阻 (C) 由射極端看進去為低電阻、由集極端看進去為高電阻</p>

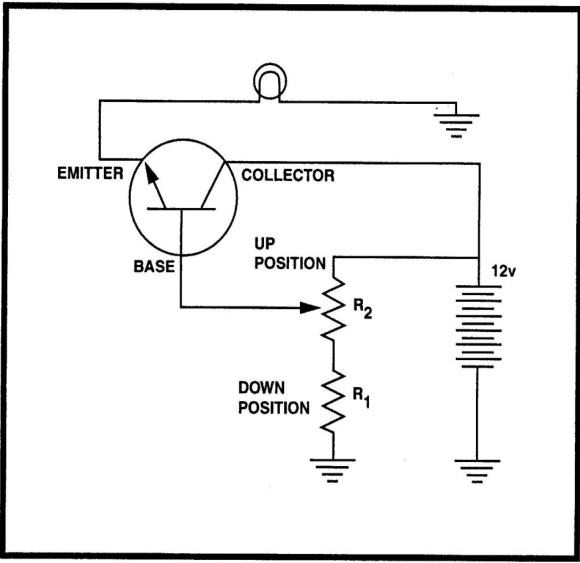
題號	答案	題目
9 0048094	C	<p>A decoupling capacitor in a PCB is used to (A) minimise transient currents. (B) pass DC only. (C) pass high-frequency noise.</p> <p>在印刷電路板上，去耦合電容是用來：(A) 使瞬態電流最小化 (B) 僅讓DC通過 (C) 讓高頻雜訊通過</p>
10 0048165	B	<p>Increasing velocity feedback from optimum will give (A) faster performance (B) sluggish performance (C) no change on the output</p> <p>由最佳化設定值增加速度回授將會造成 (A) 更快的性能 (B) 遲鈍的性能 (C) 輸出沒有什麼改變</p>
11 0048010	B	<p>In a transistor, the arrow always points in the direction of. (A) electron flow. (B) conventional current. (C) emitter.</p> <p>在一個電晶體中，箭頭的方向總是指向 (A) 電子流 (B) 習慣用語的</p>
12 0020771	A	<p>What are the two stable operating conditions of an SCR? (A) Conducting and nonconducting. (B) Oscillating and quiescent. (C) Forward conducting and reverse conducting.</p> <p>矽控整流器有那兩種穩定狀態？(A) 導通及不導通 (B) 振盪及靜止 (C) 順向導通及逆向導通</p>
13 0048288	A	<p>Structurally, what are the two main categories of semiconductor diodes? (A) Junction and point contact. (B) Forward and reverse (C) Polar and non-polar</p> <p>在結構上，半導體二極體的兩個主要類別是什麼？(A) 接面及點接觸 (B) 順向及逆向 (C) 極性與非極性</p>
14 0048147	C	<p>What type of gate is an OR gate with both inverted inputs and inverted outputs? (A) NAND gate (B) NOR gate (C) AND gate</p> <p>當一個OR gate的二個輸入端以及一個輸出端皆接上一個反向器時，相當於以下何種邏輯電路？(A) NAND gate (B) NOR gate (C) AND gate</p>

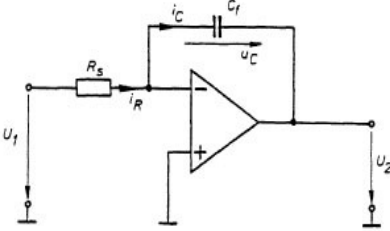
題號	答案	題目
15 0048171	B	<p>The circuit in the picture is a(n) ... (A) comparator (B) inverter (C) adder</p> <p>圖中電路是一個... (A) 比較器 (B) 反向器 (C) 加法器</p> 
16 0048150	C	<p>The rotor of an autosyn position indicating system is (A) a permanent magnet (B) spring controlled (C) an electromagnet</p> <p>自動同步位置指示器系統的轉子是 (A) 永磁 (B) 彈簧控制 (C) 電磁鐵</p>
17 0026928	B	<p>The circuit in the picture is a(n)... (A) inverter (B) adder (C) integrator</p> <p>圖中電路是一個... (A) 反向器 (B) 加法器 (C) 積分器</p> 
18 0026923	B	<p>In general, when operating frequency gets higher, the gain of an OP-amplifier will be (A) higher. (B) lower. (C) sometimes higher and sometimes lower.</p> <p>一般而言，當工作頻率愈高時，運算放大器的放大倍率愈 (A) 高。 (B) 低。 (C) 不一定。</p>

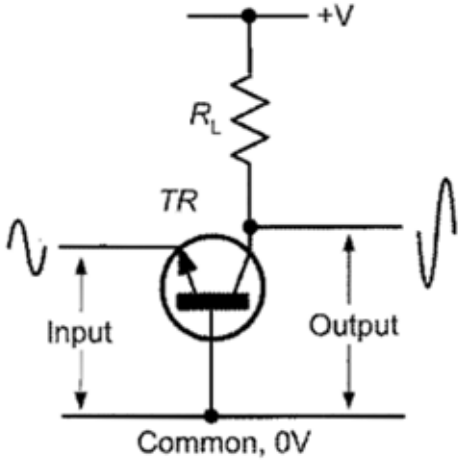
題號	答案	題目
19 0048064	C	<p>What is the gate in the picture? (A) NAND gate. (B) NOR gate. (C) AND gate.</p> <p>下圖是什麼類型的邏輯閘？(A) 反及閘 (B) 反或閘 (C) 及閘</p> 
20 0026918	A	<p>How is the conduction of a bipolar transistor established? (A) By minority carriers injected into the base region. (B) By majority carriers injected into the base region. (C) By minority carriers injected into the collector region.</p> <p>雙極電晶體的傳導是如何建立的？(A) 靠少數載子注入基極區域 (B) 靠多數載子注入基極區域 (C) 靠少數載子注入集極區域</p>
21 0047927	A	<p>The electrodes of an SCR are (A) gate, cathode, anode (B) source, drain, gate (C) anode, cathode, source.</p> <p>一個矽控整流二極體的電極是：(A) 柵極，陰極，陽極 (B) 源極，漏極，柵極 (C) 陽極，陰極，源極</p>
22 0048289	A	<p>What are the two primary classifications of Zener diodes? (A) Hot carrier and tunnel. (B) Forward and reverse (C) Polar and non-polar</p> <p>齊納二極體的工作原理兩個主要分類有哪些？ (A) 熱載子及通道 (B) 順向及逆向 (C) 極性與非極性</p>

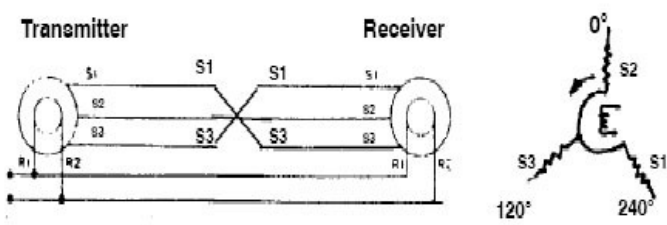
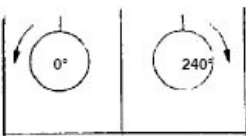
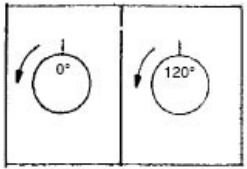
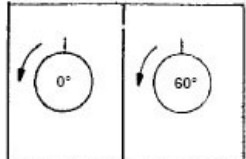
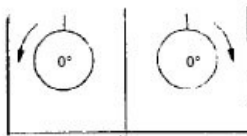
題號	答案	題目
23 0026978	C	<p>What is the meaning of this symbol? (A) inverting amplifier (B) NON-inverting amplifier (C) voltage follower</p> <p>這個符號的含義是什麼？ (A) 反相放大器 (B) 非反相放大器 (C) 電壓跟隨器</p> 
24 0020591	C	<p>For BJT, $V_{cc}=5V$, $\beta=100$, $R_B=4.7K\Omega$, $R_C=1K\Omega$, $V_B=5.4V$, $V_{CE}=?V$ (A) 0.1V (B) 0.3V (C) 0.2V</p> <p>電晶體電路中, $V_{cc}=5V$, $\beta=100$, $R_B=4.7K\Omega$, $R_C=1K\Omega$, $V_B=5.4V$, 求 $V_{CE}=?V$ (A) 0.1V (B) 0.3V (C) 0.2V</p>
25 0027000	C	<p>Which statement is NOT correct for Printed Circuit Board? (A) PCB is used to mechanically support electronic components. (B) PCB is used to electrically connect electronic components. (C) The copper sheets are laminated onto a conductive substrate.</p> <p>有關印刷電路板, 哪一個說法是不正確的? (A) 印刷電路板是用來機械式地支撐電子元件。 (B) 印刷電路板是用來作電子元件的電氣連接。 (C) 銅箔片是用層壓方式壓到導電基板上的。</p>

題號	答案	題目
26 0020566	C	<p>The circuit provided in Fig M4-122 shows a:</p> <p>(A) Inverting amplifier (B) Non-inverting amplifier (C) Differential amplifier</p> <p>圖M4-122中之電路是：</p> <p>(A) 反相放大器 (B) 非反相放大器 (C) 差異放大器</p> 
27 0020553	A	<p>The common-emitter current gain of a transistor is found from the ratio of:</p> <p>(A) collector current to base current (B) collector current to emitter current (C) emitter current to base current</p> <p>電晶體共射極電流增益可由下列哪一比值得到？</p> <p>(A) 集極電流對基極電流 (B) 集極電流對射極電流 (C) 射極電流對基極電流</p>
28 0048026	C	<p>A transistor is said to be in the quiescent state when.</p> <p>(A) no currents are flowing. (B) it is unbiased. (C) no signal is applied to the input.</p> <p>電晶體在靜止狀態下係指：</p> <p>(A) 沒有電流流動 (B) 無偏壓 (C) 沒有信號被施加到輸入端</p>
29 0047945	B	<p>Germanium in its pure state is.</p> <p>(A) negatively charged. (B) neutral. (C) positively charged.</p> <p>純鎘的電性為？</p> <p>(A) 帶負電荷 (B) 中性 (C) 帶正電荷</p>

題號	答案	題目
30 0026835	C	<p>The effective resistance of LDR-Resistor changes according to ...</p> <p>(A) ... the input voltage. (B) ... the temperature around resistors. (C) ... an internal photoelectric effect.</p> <p>LDR有效電阻的變化，是根據 ...</p> <p>(A) ... 輸入電壓。 (B) ... 電阻周圍的溫度。 (C) ... 電阻內部的光電效應。</p>
31 0026954	A	<p>If R2 sticks in the up position of this circuit, the light will</p> <p>(A) be on full bright. (B) be very dim. (C) not illuminate.</p> <p>如果這個電路的 R2 調整在上方的位置，燈泡會</p> <p>(A) 是最亮。 (B) 是非常暗。 (C) 無法點亮。</p> 
32 0020655	B	<p>Which of the following statements is correct about the Surface mounted components? (A)It is easy to install and remove. (B)It can be mounted to both sides of a printed circuit board. (C)The identification is clear more than conventional wire leads components.</p> <p>下列有關於印刷電路板表面固定元件之說明何者正確？ (A)容易拆裝 (B)可固定於印刷電路板上、下兩側 (C)比傳統之線接腳元件更容易識別</p>

題號	答案	題目
33 0026986	C	<p>Select the formula for circuit results of sinusoidal input voltages. (A) (a) (B) (b) (C) (c)</p> <p>選擇本電路的正弦輸入電壓的增益公式。 (A) (a) (B) (b) (C) (c)</p>  <p>(a) $\frac{1}{R_s \times C_f}$ (b) $R_f \times C_s$</p> <p>(c) $\frac{1}{2\pi f \times R_s \times C_f}$ (d) $R_f \times C_s \times 2\pi f$</p>
34 0020731	B	<p>Printed circuit board edge connectors are frequently gold plated. This is because it: (A) increase the contact resistance (B) improve contact reliability (C) reduce contact friction</p> <p>印刷電路板邊端連接器(edge connector)經常使用鍍金，其使用之原因是： (A) 增加接觸電阻 (B) 提升接觸穩定度 (C) 降低接觸摩擦</p>
35 0020540	C	<p>Which of the following is passive component? (A) diode (B) transistor (C) resistor</p> <p>下列何種元件為被動元件? (A)二極體 (B)電晶體 (C)電阻</p>

題號	答案	題目
36 0020563	C	<p>The circuit provided in Fig M4-119 shows a: (A)Common emitter (B)Common collector (C)Common base</p> <p>圖M4-119中之電路是：(A)共射級基級放大器</p> 
37 0020629	C	<p>Which of the following statement is incorrect about the JFET? (A)it has very high-input resistance (B)the effective resistance between the source and drain is controlled by VGS (C)the device will be cut-off when the VGS is zero .</p> <p>下列有關於接面型場效電晶體之說明何者不正確？(A)它有非常高之輸入阻抗 (B)介於源極及流極間之有效電阻是由VGS控制 (C)當VGS是零值時，晶體呈現關斷狀態</p>
38 0020723	A	<p>A tachogenerator is usually used for (A)rate feedback (B)angular feedback (C)position feedback</p> <p>測速發電機通常用於以下何者： (A)比率回饋 (B)角之回饋 (C)位置回饋</p>
39 0020743	C	<p>If the output of a transistor amplifier is 5V rms and the input is 100mV rms, the voltage gain is (A)5 (B)500 (C)50</p> <p>假如電晶體放大器之輸出是5V rms，而輸入是100mV rms，則電壓增益是 (A)5 (B)500 (C)50</p>
40 0020783	B	<p>When the temperture is increased, the resistance of semiconductor and insulator materials will (A)increase (B)decrease (C)not change significantly</p> <p>半導體或絕緣體材料之電阻會隨溫度之昇高而 (A)升高 (B)下降 (C)沒有明顯之變化</p>

題號	答案	題目
41 0026872	B	<p>During construction, how are PCB' s (Printed Circuit Boards) constructed? (A)Always with only one layer on one side. (B)With several layers inside the board depending on requirements. (C)With no layers, only a piece of copper laminated paper.</p> <p>在建造過程中, PCB(印刷電路板)是如何建造? (A)通常是在單一板面上只有單層. (B)電路板內根據需求可以有數層. (C)沒有層, 只是一個一片銅箔層的壓紙板.</p>
42 0026908	C	<p>The servo motor is, in most cases, a two phase asynchronous motor. One phase of the motor is displaced by an angle of ... (A)... 45 degrees in relation to the excitation of the system. (B)... 60 degrees in relation to the excitation of the system. (C)... 90 degrees in relation to the excitation of the system.</p> <p>在大多數情況下伺服馬達是一個兩相異步馬達. 馬達的其中一個相位角度是放置在與 ... (A)... 系統激勵成45度的位置. (B)... 系統激勵成60度的位置. (C)... 系統激勵成90度的位置.</p>
43 0027020	C	<p>What fault occurs at the shown schematics? (A)(a) (B)(b) (C)(d)</p> <p>在什麼電路圖中會發生故障?</p> <p>(A)(a) (B)(b) (C)(d)</p> <div style="text-align: center;">  </div> <p>(a) Transmitter Receiver (b) Transmitter Receiver</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>(c) Transmitter Receiver</p> </div> <div style="text-align: center;">  <p>(d) Transmitter Receiver</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>

題號	答案	題目
44 0033672	C	<p>When a diode is checked for an open circuit or a short circuit , it should be (A)in the circuit . (B)checked with a milliamp ammeter . (C)disconnected from the circuit .</p> <p>檢測二極體的開路或短路，它必須 (A)於電路中直接量測 (B)使用微電流表 (C)與電路斷開</p>
45 0047962	A	<p>A semiconductor doped with an element having a valency of 5 will produce. (A)an N type material. (B)either an N type or a P type depending on what type of semiconductor material is used. (C)a P type material.</p> <p>一半導體摻入五價之元素會產生？ (A)為N型材料 (B)非為N型或者P型，而是根據使用不同的半導體材料而決定 (C)為P型材料</p>
46 0048105	C	<p>When a servomotor has stopped, the rate feedback from a tachogenerator is (A)maximum and in phase (B)maximum and anti-phase (C)zero</p> <p>當伺服馬達停止時，測速發電機上的速率回授信號應？ (A)同相，最大值 (B)異相，最大值 (C)零</p>
47 0048169	C	<p>Position feedback is used to (A)indicate to the pilot the position of the load (B)to prevent control surface oscillations while the surface is being moved (C)ensure control surface moves to the demanded position by the controllers</p> <p>位置回授常用於 (A)指示飛行員負載的位置 (B)防止控制面開始移動時產生震盪 (C)確保控制面移動到控制器所指定的位置</p>

題號	答案	題目
48 0048185	A	<p>The phase difference between the supplies of a two phase induction motor is (A)90° (B)180° (C)0°</p> <p>兩相感應馬達輸出端之間的相位差是： (A)90° (B)180° (C)0°</p>
49 0048268	A	<p>When you use an op amp as a buffer it has (A)high input impedance and low output impedance (B)low input impedance and low output impedance (C)high input impedance and high output impedance</p> <p>使用運算放大器作為一個緩衝器則會有 (A)高輸入阻抗和低輸出阻抗 (B)低輸入阻抗和低輸出阻抗 (C)高輸入阻抗和高輸出阻抗</p>
50 0048305	A	<p>What is a depletion-mode FET? (A)An FET that has a channel with no gate voltage applied; a current flows with zero gate voltage. (B)An FET that has a channel with gate voltage applied; a current flows with zero gate voltage. (C)An FET that has a channel with gate voltage applied; a current flows with gate voltage.</p> <p>甚麼是空乏型場效應電晶體？ (A)場效應電晶體有通道但不需閘電壓；在零閘電壓下有導通電流 (B)場效應電晶體有通道但需閘電壓；在零閘電壓下有導通電流 (C)場效應電晶體有通道但需閘電壓；在閘電壓下有導通電流</p>
51 0066107	A	<p>Synchros used in most aircraft synchros operate on _____ volts. (A)26 (B)28 (C)115</p> <p>大多數飛機所使用的同步器之工作電壓為_____伏。 (A)26 (B)28 (C)115</p>
52 0066247	C	<p>The input stage of a operational amplifier is a _____. (A)power amplifier (B)voltage rectifier (C)differential amplifier.</p> <p>運算放大器的輸入級是____。 (A)power amplifier (B)voltage rectifier (C)differential amplifier.</p>