

## 臺灣綜合大學系統 105 學年度學士班轉學生聯合招生考試試題

科目名稱	計算機概論	類組代碼	A13
		科目碼	A1301
※本項考試依簡章規定各考科均「不可以」使用計算機		本試題共計 3 頁	
<p><b>I. Multiple Choice Questions (80%)</b></p> <p>1. Which of the following items takes an executable file as input, and creates a high level, compilable source file that does the same thing? (A)Interpreter (B)Compiler (C)Assembler (D)Decompiler (E)Decoder</p> <p>2. What is the number of bits required for addressing a 4k bytes memory space? (A)2 (B)4 (C)8 (D)12 (E)16</p> <p>3. Which of the following diagrams gives a logical structure of a database graphically? (A)Entity-relationship diagram (B&gt;Data flow diagram (C)Event-driven process chain diagram (D)Use case diagram (E)Class diagram</p> <p>4. <math>\lim_{x \rightarrow 0} \frac{\cos(3x) - 1}{x^2} =</math> (A) <math>\frac{-81}{24}</math> (B)0 (C) <math>\frac{27}{8}</math> (D) <math>\frac{80}{24}</math> (E)-<math>\infty</math></p> <p>5. John randomly chooses one of 20 integers from 1 to 20. Mary also randomly chooses one of 20 integers from 1 to 20. What is the probability that one of the chosen integers is the square of the other? (A) <math>\frac{1}{20}</math> (B) <math>\frac{3}{20}</math> (C) <math>\frac{1}{50}</math> (D) <math>\frac{6}{400}</math> (E) <math>\frac{7}{400}</math></p> <p>6. Which of the following descriptions is incorrect? (A)Instruction register holds the programming instruction that will be executed at the start of the next clock cycle. (B)Accumulation register is used to keep track the memory address of the next instruction which will be executed. (C)Memory-mapped I/O uses the same address bus to address both memory and I/O devices so that when an address is accessed by the CPU, it may refer to a portion of physical RAM, but it can also refer to memory of the I/O device. (D)Virtual memory uses a disk as an extension of RAM so that the effective size of usable memory grows correspondingly. (E)CPU uses cache memory to store instructions that are repeatedly required to run programs, improving overall system speed.</p> <p>7. Which of the following descriptions is incorrect? (A)A foreign key is an attribute, or set of attributes, within one relation that matches the candidate key of some relation. (B)The value of a foreign key in a table cannot be updated in that table. (C)The value of a primary key in a table must be unique in that table. (D)A proper subset of a primary key must not be unique. (E)The value of a primary key in a table must be not NULL in that table.</p> <p>8. Which of the following items is not the advantage of a DBMS? (A)Data Independence (B)Ease of application development (C)Decentralized administration of the data</p>			

背面有題，請繼續作答。

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<p>(D)Uniform security, privacy and integrity (E)Forcing Data to be consistent</p> <p>9. Which of the following descriptions is incorrect?  (A)Data fragmentation occurs when a collection of data in memory is broken up into many pieces that are not close together.  (B)Console enables human operators to communicate with the computer.  (C)Command interpreter is to get and execute the next user-specified command.  (D)A system call is the programmatic way in which a computer program requests a service from the kernel of the operating system it is executed on.  (E)MIPS refers to megabytes data per second transferred via network.</p> <p>10. Which of the following descriptions is incorrect?  (A)Bluetooth is the wireless technology for wide area network.  (B)Protocols is a set of rules that governs data communication.  (C)A router is a device that forwards packets between networks by processing the routing information included in the packet.  (D)Dial-up Internet access uses the facilities of the public switched telephone network to establish a connection to an Internet service provider by dialing a telephone number on a conventional telephone line.  (E)Virtual private network extends a private network across public networks.</p> <p>11. If the purchase cost is \$90, the maintenance cost is \$6, and the annual sale are 30 units, EOQ is  (A)20 (B)30 (C)60 (D)90 (E)180</p> <p>12. Which of the following descriptions is not the property of decision table?  (A)A decision table puts conditions into a table which lists all the combinations of True and False for each of actions.  (B)It is better to deal with large numbers of conditions by dividing them into subsets and dealing with the subsets one at a time.  (C)A huge set of possible inputs can be reduced into small one but equally effective inputs.  (D)A decision table is preferable when a complex set of conditions and actions appears in a component.  (E)All of the above are the properties of decision table.</p> <p>13. Which of the following descriptions is not the advantage of database normalization?  (A)ensuring data integrity  (B)eliminating data redundancy  (C)reducing system developing time  (D)saving memory space  (E)preventing insertion, deletion, and update anomalies</p> <p>14. Which of the following items is not a fact-finding technique?  (A)Structured walk-through (B)Interview (C)Questionnaire (D)Record reviews (E)Observation</p> <p>15. Which traversal type will print the data in the nodes of a binary search tree in sorted order?  (A)Ascending order (B)Dscending order (C)Postorder (D)Inorder (E)Preorder</p> <p>16. How many symbol '?' are printed in the following pseudo codes when calling P(12)? (Here parameter n is passed by value)</p>			

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<div data-bbox="159 412 437 618" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <pre>P(int n) { If (n &gt; 1) then{     P(n/3)     P(n/3)} Print “?”}</pre> </div> <p>(A)3 (B)7 (C)8 (D)14 (E)15</p> <p>17. What is the output of the following pseudo codes?</p> <div data-bbox="169 739 628 945" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <pre>value=0 for (int j = 5; j &gt; 0; j--){     for (int k = 1; k &lt; j; k = 2*k){         value= value + k} print value }</pre> </div> <p>(A)10 (B)12 (C)14 (D)16 (E)18</p> <p>18. Which is the time complexity of the following pseudo codes for running search(DATA, key, 1, n)? Assume that there are n data in array DATA.</p> <div data-bbox="169 1115 1078 1352" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <pre>search(DATA, key, l, r){     if l &gt; r then return -1     m =(int)((l + r)/2)     if DATA[m] &gt; key then return search(DATA, key, l, m-1)     else if DATA[m] &lt; key then return search(DATA, key, m+1, r)}     else return m</pre> </div> <p>(A)<math>O(\log_2 \log_2 n)</math> (B)<math>O(\log_2 n)</math> (C)<math>O(n)</math> (D)<math>O(n \log_2 n)</math> (E)<math>O(n^2)</math></p> <p>19. Which of the following descriptions for binary search is not correct?</p> <p>(A)Data must be stored in an array.  (B)Its time complexity is <math>O(n \log n)</math>.  (C)Data must be sorted.  (D)It is not a good search method when the number of data is large.  (E)It is not a good strategy for using a binary search method to deal with the data when a lot of insertion and deletions are needed for the data.</p> <p>20. Which of the following descriptions is incorrect?</p> <p>(A)An email client needs to know the MAC address of its initial SMTP server.  (B)Simple mail transfer protocol utilizes TCP as the transport layer protocol for electronic mail transfer.  (C)SMTP connections secured by SSL are known as SMTPS.  (D)An SMTP extension is on-demand mail relay.  (E)SMTP defines message transport.</p> <p>II. The greatest common divisor (gcd) of two integers, at least one of them not zero, is the largest positive integer that divides both numbers without a remainder. For example, the GCD of 8 and 12 is 4. Write program-like pseudo codes to compute the gcd of two integers <math>a</math> and <math>b</math>. (10%)</p> <p>III. Write program-like pseudo codes to sort the data in an array. (10%)</p>			