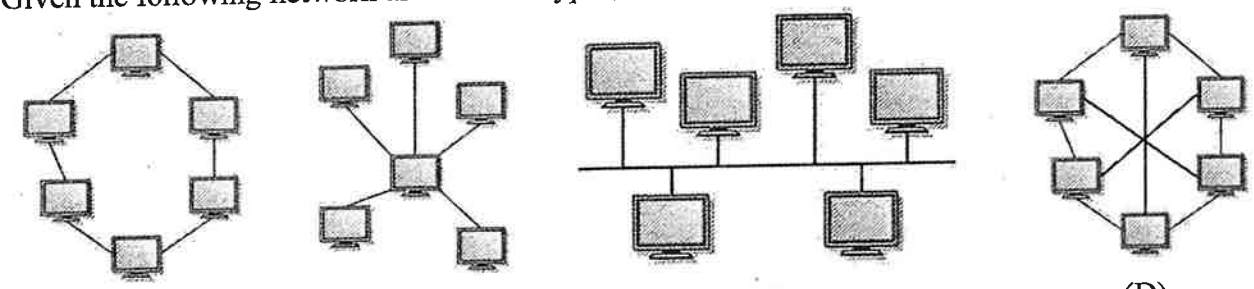
臺灣綜合大學系統 113 學年度學士班轉學生聯合招生考試試題

科目名稱	計算機概論	類組代碼	A06
		科目碼	A0602

※本項考試依簡章規定所有考科均「不可」使用計算機。　　本科試題共計 4 頁

全部題目皆為單選無倒扣

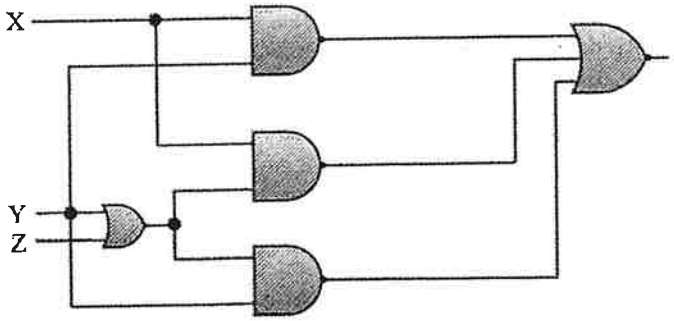
1. Which of the following descriptions of Moore's Law is correct? (A) Moore's law is the observation that the number of transistors in an integrated circuit doubles about every year. (B) Moore's law is the observation that the number of transistors in an integrated circuit doubles about every two years. (C) Moore's law is the observation that the number of transistors in a graphics processing unit doubles about every year. (D) Moore's law is the observation that the number of transistors in a graphics processing unit triples about every two years. (2 Points)
2. Which programming language is converted into machine code through an interpreter and then executed? (A) C++ (B) JAVA (C) C (D) Python. (2 Points)
3. For object-oriented programming languages, what should the definition be called if a subclass defines a method with the same name as the parent class? (A)Redefine, (B)Overload, (C)Override, (D)Reuse. (2 Points)
4. Which of the following types of memory has the fastest access speed? (A) Register (B) Flash memory (C) Cache memory (D) Random access memory. (2 Points)
5. Which of the following websites uses the concept of Web 2.0? (A) Taipei City Government website (B)Wikipedia (C) Presidential Office website (D) Yahoo! News. (2 Points)
6. Given the following network architecture types, which one is called bus topology? (2 Points)



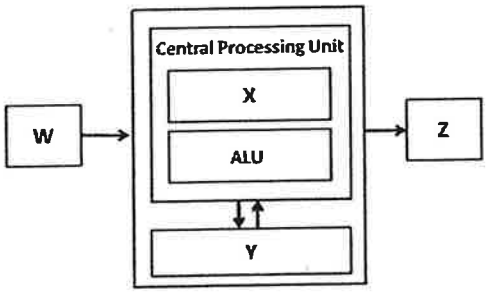
(A)　(B)　(C)　(D)

7. Which of the following is not a property of big data analysis? (A)Velocity, (B)Volume, (C)Virtual, (D)Variety. (2 Points)
8. If the modeling accuracy of a deep learning model decreases as the number of training times increases, what do we say is happening? (A)Transfer learning, (B)Weak learning, (C)Underfitting, (D)Overfitting. (2 Points)
9. Which of the following is equivalent to 240722_{10}? (A) 111010110001011010_2. (B)726122_8. (C) $3AB52_{16}$. (D) $7C2I_{32}$. (3 Points)
10. The IEEE standards for floating-point representation of single precision will include three parts: S, Exponent, and Mantissa. How many bits does each part occupy? (A) 1, 8, 23. (B) 1, 7, 24. (C) 1, 11, 52. (D) 1, 12, 51. (3 Points)
11. A computer has 128MB of memory. Each word in this computer is eight bytes. How many bits are needed to address any single word in memory? (A) 24 bits (B) 25 bits (C) 26 bits (D) 27 bits. (3 Points)
12. What is the depth of a complete binary tree with 255 nodes? (A) 7 (B) 8 (C) 9 (D) 10. (3 Points)
13. How many bytes does the IPv6 Header packet consist of? (A)16, (B)24, (C)40, (D)64. (3 Points)
14. What is the time complexity of $f(n) = 3n\log(n!) + (n^2+3)\log(n) + (n+1)\log(n^2+1) + 3n^2$, where n is a positive integer. (A)$O(n^2 \log n)$, (B)$O(n!)$, (C)$O(n^2)$, (D)$O(n^2 \log n^2)$. (3 Points)

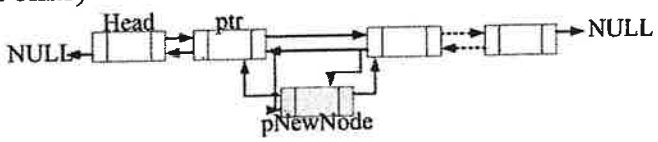
15. What is the Boolean expression of the following circuit? (A) (X+Y)(X+YZ)(Y+YZ). (B) (X+Y)(X+XZ)(X+YZ). (C) XY + X(X+Z) + Y(X+Z). (D) XY + X(Y+Z) + Y(Y+Z). (3 Points)



16. The figure below is a Von Neumann architecture. What are W, X, Y, and Z in the picture?. (A) Input Device, Memory Unit, Control Unit, Output Device. (B) Input Device, Control Unit, Register, Output Device. (C) Input Device, Register, Control Unit, Output Device. (D) Input Device, Control Unit, Memory Unit, Output Device. (3 Points)



17. If you want to insert a node in the middle of a doubly linked list (as shown in the figure below), which of the following code sequences is wrong?(A)1,4,3,2, (B)1,2,3,4, (C)2,1,4,3, (D)4,1,2,3. (3 Points)



(1)pNewNode->RLINK=ptr->RLINK;
(2)pNewNode->LLINK=ptr;
(3)ptr->RLINK=pNewNode;
(4)ptr->RLINK->LLINK=pNewNode;

18. Suppose we want to use hashing methods to store data in a list, where the formula of this method is list_address=(key mod list_size)+1. If the list_size is known to be 307, then after we save the three pieces of data with their keys 070918, 379452, and 121265 into the list in order, what are the list_addresses of saving these pieces of data? (A)001, 000, 000, (B)001, 000, 002, (C) 002, 001, 003, (D)002, 001, 001. (3 Points)

19. Which of the following TCP/IP protocol suites is correctly arranged from Layer 1 to Layer 5, where Layer 5 is the layer closest to the user (A) Physical, Data link, Network, Transport, Application. (B) Physical, Data link, Transport, Network, Application. (C)Physical, Network, Data link, Transport, Application. (D)Physical, Transport, Network, Data link, Application. (3 Points)

20. Suppose we use the Caesar cipher with the formula $y=(x+12) \bmod 26$ to convert a plaintext and obtain the ciphertext ymftqymfulq. What is the original plaintext? (A)mathematica, (B)mathematies, (C) mathematics, (D) mathematize. (3 Points)

21. The database design process includes the following four steps: (1) Database establishment, (2) Logical design stage, (3) Conceptual design stage, and (4) Understanding customer needs. What is the correct process sequence? (A)4, 2, 3, 1, (B)2, 3, 4, 1, (C) 4, 3, 2, 1, (D) 3, 2, 4, 1. (3 Points)

22. What is the output of the following code? (A) hel, (B) ell, (C) llo, (D) hlo. (5 Points)

```
int main() {
    string s = "hello";
    cout << s.substr(1, 3) << endl;
    return 0;
}
```

23. What is the output of the following code? (A)5, (B)9, (C)6, (D)10. (5 Points)

```
int main() {
    int sum = 0;
    for (int i = 1; i <= 5; i++) {
        if (i % 2 == 0) {
            sum += i;
        }
    }
    printf("%d\n", sum);
    return 0;
}
```

24. What is the output of the following code? (A) 1 2 3 4 5, (B) 5 4 3 2 1, (C) 1 3 5 2 4, (D) 5 3 1 4 2. (5 Points)

```
void recursiveFunction(int* arr, int n) {
    if (n == 0) return;
    cout << arr[n - 1] << " ";
    recursiveFunction(arr, n - 1);
}
int main() {
    int arr[] = {1, 2, 3, 4, 5};
    recursiveFunction(arr, 5);
    return 0;
}
```

25. What is the output of the following code? (A) 2 6, (B) 1 3, (C) 2 3, (D) 2 4. (5 Points)

```
void modifyArray(int *arr, int size) {
    for(int i = 0; i < size; i++) {
        arr[i] *= 2;
    }
}
int main() {
    int arr[] = {1, 2, 3, 4, 5};
    modifyArray(arr, 3);
    cout << arr[0] << " " << arr[2] << endl;
    return 0;
}
```

26. What is the output of the following code? (A)10, (B)15, (C)20, (D)25. (5 Points)

```
int main() {
    int x = 10;
    int y = 0;
    for (int i = 0; i < 5; ++i) {
        if (i % 2 == 0) {
            y += x;
        } else {
            y -= x / 2;
        }
    }
    cout << y << endl;
    return 0;
}
```

27. What is the output of the following code? (A)5, (B)15, (C)25, (D)30. (5 Points)

```
int compute(int x) {
    if (x <= 1) return 1;
    return x * compute(x - 2);
}
int main() {
    int result = compute(5);
    cout << result << endl;
    return 0;
}
```

28. What is the output of the following code? (A)6, (B)10, (C)14, (D)16. (5 Points)

```
int main() {
    int arr[] = {2, 4, 6, 8, 10};
    int *ptr = arr;
    ptr += 2;
    cout << *ptr + *(ptr + 2) << endl;
    return 0;
}
```

29. What is the output of the following code? (A)1, (B)4, (C)10, (D)16. (5 Points)

```
void increment(int &x) {
    x++;
}
void square(int &x) {
    x *= x;
}
void reset(int x) {
    x = 1;
}
int main() {
    int a = 3;
    increment(a);
    reset(a);
    square(a);
    cout << a << endl;
    return 0;
}
```

30. What is the output of the following code? (A) 5 9, (B) 3 5, (C) 4 9, (D) 5 7. (5 Points)

```
void pointerManipulation(int *arr, int size) {
    for (int i = 0; i < size; i++) {
        *(arr + i) += i;
    }
}
int main() {
    int numbers[] = {1, 2, 3, 4, 5};
    pointerManipulation(numbers, 5);
    cout << numbers[2] << " " << numbers[4] << endl;
    return 0;
}
```