| 科目名稱 | 計算機概論 | 類組代碼 | B30.D33 |
| | | 科目碼 | B3091 |

※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 **5** 頁

Multiple Choice (100 points)

Choose ONE answer only for each question (2.5 points for each question)

1. The measurements are used to evaluate a disk system's performance do not include:
   A. seek time
   B. rotation delay
   C. access time
   D. execution time

2. The binary representation of 26+7 is:
   A. 100000
   B. 100001
   C. 100011
   D. 11101

3. The binary representation of 58-30 is:
   A. 11100
   B. 11000
   C. 10100
   D. 11110

4. The floating-point notation of 70.375 is:
   A. 1001010.011
   B. 1001010.101
   C. 1000110.011
   D. 1000110.101

5. Which of the following is non-volatile?
   A. ROM
   B. RAM
   C. DDR RAM
   D. SDRAM

6. Which one is the control instruction?
   A. LOAD
   B. STORE
   C. JUMP
   D. ROTATE

7. The steps in the machine cycle are:
   A. fetch, execute, decode
   B. fetch, decode, execute
   C. decode, fetch, execute
   D. execute, fetch, decode

8. 12 bitwise and 10 equals to:
   A. 8
   B. 10
   C. 12
   D. 14

9. 14 bitwise or 10 equals to:
   A. 11
   B. 12
   C. 13
   D. 14

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10. The following processes arrive for execution at the times indicated. Each process will run the listed amount of time. Suppose the nonpreemptive shortest job first (SJF) scheduling algorithm is used, what is the average waiting time for these processes?

Process	Arrival Time	Burst Time
P1	0	3
P2	0	5
P3	0	7

    A. 3.33
    B. 3.67
    C. 4.00
    D. 4.33

11. Following the question above. What is the average turnaround time for these processes?
    A. 8.00
    B. 8.33
    C. 8.67
    D. 9.00

12. Which of the following is not in the process state table?
    A. new
    B. ready
    C. interrupted
    D. waiting

13. The term time slice refers to:
    A. the amount of time a program uses the CPU before being interrupted by the operating system
    B. the amount of time the operating system takes to perform its resource allocation tasks
    C. the amount of time it takes a program to perform a calculation
    D. the amount of time it takes a program to respond to a request from the user

14. The memory manager may create the illusion of additional memory space by rotating programs and data back and forth between main memory and mass storage by a technique called:
    A. Thrashing
    B. swapping I/O
    C. semaphore
    D. paging

15. The scenario in which two or more processes are blocked from progressing because each is waiting for a resource that is allocated to another is called:
    A. circular waiting
    B. stop-and-wait
    C. deadlock
    D. unbounded waiting

16. Which of the following is for connecting networks?
    A. waiting queue
    B. client
    C. server
    D. router

17. Which protocol applies three-way handshake?
    A. IPv4
    B. DHCP
    C. TCP
    D. UDP
18. How many bits are in an IPv4 address?
    A. 8
    B. 16
    C. 32
    D. 64
19. The reliable transport layer protocol is called:
    A. TCP
    B. UDP
    C. ICMP
    D. DHCP
20. Which of the following is not an advantage of 5G over 4G?
    A. lower latency
    B. higher data speed
    C. massive network capacity
    D. higher network energy usage
21. A notational system in which ideas can be expressed during the algorithm development process is called:
    A. algorithm
    B. pseudocode
    C. C language
    D. Python language
22. A set of steps that defines how a task is performed is called:
    A. algorithm
    B. pseudocode
    C. C language
    D. Python language
23. Which of the following is not polynomially bounded?
    A. $n\log n$
    B. n^n
    C. $2^{\log n}$
    D. $(\log n)!$
24. The time complexity of binary search is:
    A. $O(\log n)$
    B. $O(n)$
    C. $O(n\log\log n)$
    D. $O(n\log n)$
25. JAVA is a kind of _____.
    A. machine language
    B. formal language
    C. assembly language
    D. OOP language

26. What is the printed value of the following code?
```
product=1;
for(int i=1; i<=7; ++i)
      product*=i;
cout << product << endl;
```
    A. 28
    B. 720
    C. 5040
    D. 40320

27. What is the value of arr[8] of the following code?
```
int arr[10];
for(int i=0; i<10; ++i)
      arr[i]=i*i;
```
    A. 14
    B. 16
    C. 49
    D. 64

28. What is the printed value of the following code?
```
int arr[10];
for(int i=0; i<10; ++i)
      arr[i]=i*i;
      if(i%2==0)
            cout << arr[i] << " ";
cout << endl;
```
    A. 0 4 16 36 64 100
    B. 0 4 16 36 64
    C. 0 1 4 9 16 25 36 49 64 81
    D. 0 1 4

29. int and char are called:
    A. abstract data type
    B. primitive data type
    C. composite data type
    D. utility type

30. A ____ loop is a control flow statement that executes a block of code at least once.
    A. for
    B. while
    C. do-while
    D. break

31. Suppose the letter A is placed in an empty queue, followed by the letters B, C and D, in that order. Then suppose that two letters are removed from the queue and the letters E and F are inserted. Which of the following are the letters that would be in the queue in the order they would appear from head to tail?
    A. ABEF
    B. FEBA
    C. CDEF
    D. FECD

32. Following the question above. If a letter is now removed from the queue, which letter will it be?
    A. A
    B. C
    C. D
    D. F
33. Suppose a tree has four nodes A, B, C, and D. If B and C are siblings and D's parent is B, which nodes are leaf nodes?
    A. A and C
    B. A and D
    C. B and C
    D. C and D
34. Following the question above. Which node is the root?
    A. A
    B. B
    C. C
    D. D
35. Given a binary search tree. The preorder and inorder traversal of this tree are 4,2,1,3,6,5,8, and 1,2,3,4,5,6,8, respectively. Which of the following is the root of this tree?
    A. 1
    B. 2
    C. 4
    D. 8
36. In the relational database, a row in a relation is called ____.
    A. list
    B. dictionary
    C. item
    D. tuple
37. The most popular database language is called ____.
    A. MySQL
    B. SQL
    C. NoSQL
    D. HTML
38. Which of the following extracts rows from a relation?
    A. SELECT
    B. CHOOSE
    C. PROJECT
    D. JOIN
39. Which of the following produces a new relation whose attributes consist of the attributes from the original relations?
    A. SELECT
    B. CHOOSE
    C. PROJECT
    D. JOIN
40. The ____ model is very good for training images.
    A. RNN
    B. CNN
    C. GAN
    D. linear regression