Student ID: Name:

1. Given the following Java code:

```
1.      class C {
2.        public static void main(String[] args) {
3.          int a=0, b=5;
4.          try {
5.            System.out.print(a/b+b/a);
6.          } catch {
7.            System.out.println("Exceptions!!!");
8.          }
9.        }
10.     }
```

What is the result of attempting to compile the program?

A. Prints: Exceptions!!!

B. Prints Nothing

C. Compiler Error

D. Runtime Error

E. None of the above

Answer: C

題目中雖然撰寫了 catch 區塊，但並未給予例外類別名稱與建立例外實例，如：
catch(ArithmetException e)，所以編譯時即會發生錯誤的情形。

2. Given the following Java code:

```
1.      class A {
2.        public static void main(String[] args) {
3.          int a=0, b=5;
4.          String c[] = {"A", "B", "C"};
5.          try {
6.            for(int i=1; i<4; i++) {
7.              System.out.print(c[i]);
8.            }
```

```
9.            System.out.print(a/b+b/a);
10.        }
11.        catch(ArithmetException e) {
12.            System.out.println("D");
13.        }
14.        catch(ArrayIndexOutOfBoundsException e) {
15.            System.out.println("E");
16.        }
17.      }
18.    }
```

What is the result of attempting to compile the program?

A. Prints: ABC

B. Prints: ABD

C. Prints: BCE

D. Prints: BCDE

E. Compiler Error

Answer: C

c[1] = ＂B＂, c[2] = ＂C＂, c[3] = 超出陣列索引

3. Given the following Java code:

```
1.      class A {
2.        public static void main(String[] args){
3.          int a=0, b=5;
4.          String c[] = {"A", "B", "C"};
5.          try {
6.            System.out.print(c[a/b]);
7.            try {
8.              for(int i=0; i<4; i++) {
9.                System.out.print(c[i]);
10.             }
11.           }
12.           catch (Exception e)
13.           {
```

```
14.                System.out.println("D");
15.              }
16.            finally {
17.                System.out.println("E");
18.              }
19.          }
20.        catch (Exception e) {
21.            System.out.println("F");
22.          }
23.        finally {
24.            System.out.println("G");
25.          }
26.      }
27.    }
```

What is the result?

A. Prints: AABCG

B. Prints: ABCDG

C. Prints: AABCDG

D. Prints: AABCDEG

E. Prints: AABCDEFG

Answer: D

```
c[0/5] = c[0] = "A"
c[0] = "A"
c[1] = " B"
c[2] = " C"
c[3] = 超出陣列索引 輸出 "D"
進入第 16 行 finally 輸出 "E"
進入第 23 行 finally 輸出 "G"
```

4. Given the following Java code:

```
1.      class Num {
2.        public static void main( String[] args ) {
3.          int src[] = {10, 9, 8, 7, 6, 5, 4, 3, 2, 1};
```

```
4.          int res[] = {1, 2, 3, 4, 5};
5.          System.arraycopy(src, 0, res, 0, src.length);
6.          for(int i=0; i<res.length; i++) {
7.              System.out.print(res[i]);
8.          }
9.       }
10.    }
```

What is the result?
A. 10987654321
B. 10987612345
C. 12345612345
D. Compiler error
E. Runtime exception

Answer: E

呼叫 arraycopy()時，來源陣列必須比目的陣列元素個數來的少，反則會發生超
出陣列索引的情形。

5. Given the following Java code:

```
1.    class A {
2.      public static void main (String[] args) {
3.          byte a[] = new byte[2];
4.          long b[] = new long[2];
5.          float c[] = new float[2];
6.          Object d[] = new Object[2];
7.          System.out.print(a[1]+","+b[1]+","+c[1]+","+d[1]);
8.      }
9.    }
```

What is the result?
A. Prints: 0,0,0,null
B. Prints: 0,0,0.0,null
C. Prints: 0,0,0,0
D. Prints: null,null,null,null

E. The code runs with no output.

Answer: B

此題四個資料型態各宣告了 1 維陣列，並配置 2 個陣列元素空間，並且沒有給予初始值，故此題目的在於測驗各資料型態的預設初始值情形。

6. Given the following Java code:

```
1.      class A {
2.         public static void main(String[] args) {
3.            int[   ] var1;
4.            int[5] var2;
5.            int[] var3;
6.            int var4[];
7.         }
8.      }
```

What is the result?
A. compile-time errors occur at line 3
B. compile-time errors occur at line 4
C. compile-time errors occur at line 5
D. compile-time errors occur at line 6
E. None of the above

Answer: B

若要指定元素個數不可在[]裡寫數值，而是以 new 的方式配置：
int[] var2 = new int[5];

7. Given the following Java code:

```
1.      class A {
2.         static void my() throws ArithmeticException {
3.            System.out.print("A");
4.            throw new ArithmeticException("A");
```

```
5.          }
6.          public static void main (String args []) {
7.              try {
8.                  my();
9.              }
10.             catch (Exception e) {
11.                 System.out.print("B");
12.             }
13.             finally {
14.                 System.out.print("C");
15.             }
16.         }
17.     }
```

What is the result?
A. Prints: A
B. Prints: AC
C. Prints: ABC
D. Prints: AABC
E. Prints: C

Answer: C

題目中，try 區塊會呼叫 my()方法，以下為執行流程：
   - 輸出 A
   - 丟出一個 ArithmeticException，由於 my()裡面沒有 catch
   - 由上層的 catch(第 10 行)所捕捉，輸出 B
   - 進入 finally 區塊，輸出 C

8. Given the following Java code:

```
1.      class B extends Exception {}
2.      class C extends B {}
3.      class D extends C {}
4.      class A {
5.        public static void main(String args[]) {
6.            int a,b,c,d,x,y,z;
```

```
7.          a = b = c = d = x = y = 0;
8.          z = 1;
9.          try {
10.            try {
11.              switch(z) {
12.                 case 1: throw new B();
13.                 case 2: throw new C();
14.                 case 3: throw new D();
15.                 case 4: throw new Exception();
16.              }
17.              a++;
18.            }
19.            catch ( C e ) {b++;}
20.            finally{c++;}
21.          }
22.        catch ( B e ) {d++;}
23.        catch ( Exception e ) {x++;}
24.        finally {y++;}
25.        System.out.print(a+","+b+","+c+","+d+","+x+","+y);
26.      }
27.    }
```

What is the result?

A. 0,0,1,1,0,1
B. 0,1,0,1,1,0
C. 0,0,1,1,0,1
D. 0,1,1,1,1,1
E. 1,1,0,1,0,0

Answer: A
- 初始化 a, b, c, d, x, y 為 0，z 為 1
- 進入 switch，case 1，丟出例外 B
- catch(C e)無法捕捉，進入第二層的 finally，執行 c++: c=1
- 將例外往上丟
- 被 catch (B e)捕捉，執行 d++: d=1
- 略過 catch (Exception e)，離開第一層的 try
- 進入第一層的 finally，執行 y++: y=1
故結果為: 0,0,1,1,0,1

9. Given the following Java code:

```
1.      class B extends Exception {
2.         public void myMethod( ) throws RuntimeException { }
3.      }
4.
5.      class A extend B{
6.         public void myMethod( ) throws Exception { }
7.         public static void main (String[] args) { }
8.      }
```

Compile-time errors occur at which lines?
A. 1
B. 2
C. 6
D. 7
E. None of the above

Answer: C

由於所丟出的 Exception 類別比原來方法所丟出的 RuntimeException 的涵蓋範圍還大，所以在 A 類別裡覆寫 myMethod( )是不合法的作法。

10. Given the following Java code:

```
1.      class A {
2.         public static void main (String[] args) {
3.            int a=1, b=0;
4.            int c[] = {1,2,3};
5.            try {
6.               System.out.print(c[1]);
7.               try {
8.                  System.out.print(a/b+b/a);
9.               }
10.              catch (ArithmeticException e)
11.              {
12.                 System.out.print("C");
13.              }
```

14.	}
15.	catch (ArrayIndexOutOfBoundsException e) {
16.	System.out.print("A");
17.	}
18.	finally {
19.	System.out.print("B");
20.	}
21.	}
22.	}

What is the result?

(A) 1BC

(B) 1CB

(C) 2BC

(D) 2CB

(E) 2AC

Answer: D
- 一開始會輸出 c[1]的值 2，且不會發生例外，進入第 2 個 try 區塊
- a/b+b/a 發生：ArithmeticException 例外，立即被 catch 捕捉，印出 C
- 離開第 2 層的 try，最後執行 finally 區塊，印出 B