一、 選擇題（單選題，每題5分，答錯倒扣1分）

1. One type of a knowledge base:
   a. is a collection of rules
   b. is a collection of facts
   c. is a collection of cases
   d. is program to search rules and facts
   e. is a relationship between 2 concepts

2. A detail data flow diagram may include a process specification that:
   a. contains information about individual pieces of data in the diagram
   b. is a graphic description of the data flow
   c. shows the logic for the process depicted in the diagram
   d. is an abstraction of the major functions of system
   e. all of the above

3. User-developed systems are more likely to:
   a. be adequately tested and documented
   b. lack proper quality assurance standards and controls
   c. have a lengthy conversion period
   d. be controlled and have audit trails
   e. all of the above

4. Prototyping is all of the following except:
   a. a method that can reduced the time, cost and efficiency in specifying requirements
   b. a working model of a system
   c. a refined version of the final system
   d. more explicitly iterative than the conventional “life cycle”
   e. no exceptions – it is all of the above

5. The post-implementation step in the system life cycle involves:
   a. maintaining and updating the system
   b. hooking up the PCs and minis to the mainframe computer
   c. using the new system and evaluating it after it is installed
   d. paying for the system and using it for the first time
   e. all of the above

6. A project with a high level of risk is one where:
   a. structure is high, technology level is high and size is large
   b. structure is low, technology level is high and size is small
   c. structure is low, technology level is low and size is large
   d. structure is low, technology level is low and size is small
   e. all projects should be considered as high risk

7. A data warehouse is a database, where:
   a. data are stored on a single platform
   b. it contains recent data as well as historical data
   c. data are stabilized for decision making
   d. data are organized around major business informational subjects
   e. all of the above
8. Structured query language is a:
   a. application program
   b. system program
   c. data manipulation language
   d. data definition language
   e. data dictionary

9. Which of the following statement is true about Java:
   a. Java is an object oriented programming language
   b. Java can run on any computer and operating system
   c. Java was specifically developed for use on the Internet
   d. Java will change the way software is distributed
   e. all of the above

10. Dividing the processing work for transaction-based application among mainframes and microcomputers is known as:
    a. downsizing
    b. parallel processing
    c. central processing
    d. cooperative processing
    e. none of the above

11. Unstructured decisions are those in which the decision maker must:
    a. discover a routine solution to the problem
    b. execute repetitive analyses
    c. provide judgment, evaluation, and insight into the problem
    d. establish a definite procedure for handling the problem
    e. none of the above

12. Organizational culture generally refers to:
    a. the central values and norms of the organization
    b. the organization’s principal division between management and labor
    c. the ethnic backgrounds of the company’s employees
    d. the types of television programs and museum events that the organization sponsors
    e. the psychological profile of top management

13. Under the value chain model, the following are all primary activities except:
    a. human resources
    b. outbound logistics
    c. sales and marketing
    d. operations
    e. none of the above

14. The search for opportunities to develop strategic information systems should be initiated by:
    a. clerical personnel
    b. technical staff members
    c. middle management
    d. senior managers
    e. consultants
15. If the recursive formula \( f(n, m) = f(n-1, m) + f(n, m-1) \), \( f(n, 1) = 1 \), \( f(n, n) = n \), then \( f(3, 2) = ? \)
   a. 3
   b. 4
   c. 5
   d. 6
   e. none of the above

二、 Explain the following terms in details. (每題 5 分)
1. Knowledge Management
2. Object-Oriented Programming
3. Internet Protocol

三、 請比較 Bucket Sort, Insertion Sort, Mergesort, Quicksort, Heapsort 五種排序方法之特性。 (10 分)