



UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF INFORMATION TECHNOLOGY

FINAL EXAMINATION
JANUARY 2016 SEMESTER

COURSE CODE : ITD 22303
COURSE NAME : OBJECT ORIENTED SYSTEM ANALYSIS AND DESIGN
PROGRAMME NAME : DIPLOMA IN INFORMATION TECHNOLOGY
DIPLOMA OF ENGINEERING TECHNOLOGY IN
COMPUTING
DATE : 26 MAY 2016
TIME : 9.00 am – 11.30 am
DURATION : 2 HOURS 30 MINUTES

INSTRUCTIONS TO CANDIDATES

1. Please CAREFULLY read the instructions given in the question paper.
2. This question paper has information printed on both sides of the paper.
3. This question paper consists of TWO (2) sections; Section A and Section B.
4. Answer ALL questions in Section A and Section B.
5. Please write your answers on the OMR answer script and answer booklet provided.
6. Answer all questions in English language ONLY.

THERE ARE 9 PAGES OF QUESTIONS, INCLUDING THIS PAGE.

SECTION A (Total: 25 marks)**INSTRUCTION: Answer ALL questions.****Please use the objective answer sheet provided.**

1. Description that related with the business capabilities of the information system is written in the _____ section of the system request form.
 - A. business need
 - B. business value
 - C. business requirements
 - D. project need

2. Feasibility analysis may be defined as a(n)_____.
 - A. assessment of ability of the ultimate users of the system to accept the system and incorporate it into the ongoing operations of the organization
 - B. determination of the extent to which the system can be technically designed, developed, and installed
 - C. guide to determining whether to proceed with a project
 - D. identification of only the costs and benefits associated with the project

3. Which of the following factors could be included in a technical risk assessment?
 - A. Cost of a new Web server
 - B. Cost of hiring a Webmaster
 - C. No previous experience with Java within the IS department
 - D. Some fear of job loss among order entry department personnel

4. The process of assigning values for the time and effort needed to perform a system project is called _____.
 - A. analysis
 - B. estimation
 - C. identifying
 - D. planning

5. The most commonly used information-gathering technique is _____.
A. interviewing
B. joint application design (JAD) sessions
C. document analysis
D. observation
6. The information gathering technique that is most effective in combining information from a variety of perspectives, building consensus, and resolving discrepancies is a(n) _____.
A. document analysis
B. interview
C. joint application development
D. observation
7. Each use case describes _____ function(s) in which users interact with the system.
A. one
B. one or more
C. many
D. zero, one, or more
8. The importance level of a use case increases for all of the following characteristics of the use case **EXCEPT** _____.
A. the use case represents an important business process
B. the use case supports revenue generation
C. the technology is proven
D. the functionality is complex
9. The correct sequence of the major steps in creating use case diagrams is _____.
A. identify the major use cases, expand the major use cases, confirm the major use cases, create the use cases
B. identify the major use cases, confirm the major use cases, create the use cases expand the major use cases
C. identify the major use cases, confirm the major use cases, expand the major use cases, create the use cases
D. identify the major use cases, create the use cases, expand the major use cases, confirm the major use cases

10. A(n) _____ of an analysis class is where the behavior of the class is defined.
- A. operation
 - B. attribute
 - C. class
 - D. object
11. If a "student signs up for a class," which type of relationship would you use to model the relationship between the two?
- A. generalization
 - B. association
 - C. aggregation
 - D. subsetting
12. A collaboration consists of _____.
- A. a set of classes that share common operations
 - B. a set of classes that are all related to one another
 - C. a set of classes involved in a use case
 - D. two instances of a class talking with each other
13. Analysts use _____ to show the objects that participate in a use case and the messages that pass between the objects over time for one particular use case.
- A. structural models
 - B. sequence diagrams
 - C. collaboration diagram
 - D. class diagrams
14. The process of building new systems by combining packaged software, existing legacy systems, and new software written to integrate everything together is called _____.
- A. customization
 - B. formal methodology
 - C. outsourcing
 - D. systems integration

15. _____ means having the ability to send the same message to different objects, which can be interpreted differently by different objects.
- A. Encapsulation
 - B. Polymorphism
 - C. Inheritance
 - D. Coupling
16. The fundamental part of the user interface that permits the system to capture information is the _____ mechanism.
- A. description
 - B. input
 - C. interface
 - D. navigation
17. The most significant challenge to project managers is _____.
- A. no one really understands how to manage a complex systems development project
 - B. the lack of tools that can assist in controlling project progress
 - C. unrealistic schedule demands by project sponsors
 - D. lack of project management training
18. Diana needs to create a work plan for an upcoming systems project. She must first _____.
- A. identify the tasks and estimate the time needed to complete them
 - B. initiate the project and create the project management assessment
 - C. make tradeoffs and set conservative numbers
 - D. estimate the hours and request deliverables
19. Individual steps in a use case should be written in the form _____.
- A. Direct Object, Verb, Subject, Preposition, Indirect Object
 - B. Direct Object, Subject, Verb, Preposition, Indirect Object
 - C. Subject, Verb, Preposition, Indirect Object, Direct Object
 - D. Subject, Verb, Direct Object, Preposition, Indirect Object

20. Which of the following would most likely **NOT** be an example of an attribute?
- A. Cancel appointment
 - B. Customer address
 - C. Employee name
 - D. ISBN number
21. The two types of interaction diagrams are _____ diagrams.
- A. sequence and communication
 - B. object and communication
 - C. use-case and sequence
 - D. class and sequence
22. The focus in a sequence diagram is on _____.
- A. how actors interact with objects to realize a given use case
 - B. time ordering of messages being passed between objects
 - C. messages sent by actors to other objects
 - D. when an object is being created
23. The primary goal of the systems analyst is to _____.
- A. acquire a working tool
 - B. create a wonderful system
 - C. make a significant business impact
 - D. establish the three phases of the SDLC
24. Objects can be thought of as little modules that encapsulate _____.
- A. Techniques for system development
 - B. System specifications
 - C. Data and processes
 - D. Business operations
25. According to the principle of inheritance, _____.
- A. A subclass inherits methods and attributes from its superclass
 - B. A class can inherit methods and attributes from every other class
 - C. A superclass inherits methods and attributes from its subclass
 - D. A superclass inherits messages and data from its subclass

SECTION B (Total: 75 marks)

INSTRUCTION: Answer ALL questions.

Please use the answer booklet provided.

Question 1

(a) Read the following scenario:

Assume that you have to develop a computer system for a university library. The library contains books and each book may have several copies. Only members of the library may borrow books. The system checks whether the potential borrower is a member of the library, and whether there is a reservation on the book. If both checks succeed the system records that the book is on loan. Otherwise it refuses the loan. A library member may ask to extend the loan of the book. The system then checks whether there is a reservation on the book. If so, the system refuses to extend the loan. Otherwise it records the extension of the loan.

i. From the scenario above, identify the *actor* of the system.

(1 mark)

ii. Develop a *Use Case Diagram* for University Library System. Clearly indicate actor(s) involved and activities, which exist in the system.

(15 marks)

(b) Identify **THREE (3)** fact-finding techniques and list **ONE (1)** advantage and **ONE (1)** disadvantage of each technique.

(9 marks)

Question 2

- (a) Define object, class, and instances. (6 marks)
- (b) What is relationships? Identify **ONE (1)** type of relationships. (2 marks)
- (c) Read the following scenario:

Eclipse IT Consultancy has been entrusted with developing a Registration and Title system that maintains information about all vehicles registered in a particular state. For each vehicle that is registered with the office, the system has to store the name, address, telephone number of the owner, the start date and end date of the registration, plate information (issuer, year, type, and number), sticker (year, type and number), and registration fee. In addition, the following information is maintained about the vehicles themselves: the number, year, make, model, body style, gross weight, number of passengers, diesel-powered (yes/no), color, cost and mileage. If the vehicle is a trailer, diesel-powered and number of passengers are not relevant. For travel trailers, the body number and length must be known. The system needs to maintain information on the luggage capacity for a car, maximum cargo capacity and maximum towing capacity for a truck, and horsepower for a motorcycle. The system issues registration notices to owners of vehicles whose registrations are due to expire after two months. When the owner renews the registration, the system updates the registration information on the vehicle.

- i. From the scenario above, draw a *Class Diagram* that shows all the object classes, attributes, and relationships. (17 marks)

Question 3

- (a) Read the following Use Case Description below:

Use case: Provide Feedback

The use case describes how a customer can provide feedback to the company. The feedback can be a complaint, suggestion, compliment, or general.

Flow of events:

- a. The use case starts when the customer logs in to his customer account.
 - b. The customer selects "Feedback" from the screen.
 - c. The system displays four choices: complaint, suggestion, compliment, or general; provides space for order number; and provides space for feedback.
 - d. The user fills in the options and the feedback text.
 - e. The user clicks on the button Submit.
 - f. The system thanks the customer
 - g. The system sends the message to the customer service department
 - h. The system records the entries in the appropriate file(s).

 - i. Draw a *System Sequence Diagram (SSD)* based on flow of events above. (18 marks)
- (b) What are Computer-Aided Software Engineering (CASE) tools? Why are they used? (5 marks)
- (c) How does *Use Case* relate to *Sequence Diagram*? (2 marks)

END OF EXAMINATION PAPER