UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2018/2019

COURSE NAME	:	SYSTEM ANALYSIS AND DESIGN
COURSE CODE	:	BIT 20103
PROGRAMME CODE	:	BIT
EXAMINATION DATE	:	DECEMBER 2018 / JANUARY 2019
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **EIGHT (8)** PAGES

TERBUKA

Q1   A process model is _____.

A. the output of the interviewing process
B. the model that is produced by extreme prototyping
C. the expanded and thoroughly balanced use case for a system
D. a formal way of representing how a business system operates

(1 mark)

Q2   On your level 0 diagram you have a process 2 and when you create a level 1 diagram for process 2, you might have processes like _____.

A. 2.1, 2.2, 2.3
B. 2-1, 2-2, 2-3
C. 2A, 2B, 2C
D. 2-initial, 2-main, 2-end

(1 mark)

Q3   A payroll system data flow diagram (DFD) has a data-store called Accumulated Salary Data. At one stage in the DFD, a process "Calculate YTD-Taxes" gets data from the data store, updates data in the process, and keep the data back in the store. The Calculate YTD-Taxes diagram should show _____.

A. a single line with arrows on both ends labeled YTD Payroll Details
B. a dashed line with arrows on both ends labeled YTD Payroll Details
C. a line out of the data store labeled: Current YTD Payroll Details; and a line into the data store labeled: Updated YTD Payroll Details
D. two separate data flow lines but each with the same name YTD Payroll Details

(1 mark)

Q4   Faisal has a data store called 'Items' and it contains all the items sold in a convenience store – sorted by UPC code with the retail price of the item. He has one data flow called 'Item Details' that flows from the data store to the Checkout item process. What will be true in this case?

A. This is incorrect as every data store must have both inputs and outputs
B. This is incorrect as every process must have both inputs and outputs
C. This is incorrect as the data flow should have a verb phrase like 'Get Item Details'
D. This is correct

(1 mark)

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Q5   Andrei has a diagram that shows only one process and external entities. He is developing a _____..

   A. Context diagram
   B. Use case diagram
   C. Level 0 diagram
   D. Level 1 diagram

(1 mark)

Q6   Which of the following **BEST** describes second normal form?

   A. An entity whose attributes have no more than one value for a single of that entity.
   B. An entity whose non primary key attributes are dependent on the full primary key.
   C. An entity whose non primary key attributes are not dependent on any other non primary key attributes.
   D. None of the above.

(1 mark)

Q7   What is a candidate key called that is not selected to become the primary key?

   A. Primary key
   B. Concatenated key
   C. Alternate key
   D. Child key

(1 mark)

Q8   What is a data entity called that derives one or more attributes from another entity?

   A. Parent entity
   B. Associative entity
   C. Identifying entity
   D. Child entity

(1 mark)

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Q9   Which element is **NOT** a principle of User Interface Design?

    A. User experience
    B. Consistency
    C. Eye Pleasing
    D. Aesthetics

          (1 mark)

Q10   Three-clicks rule is used when _____.

    A. minimizing user effort
    B. ease of Use
    C. navigation Easy
    D. user-friendly

          (1 mark)

Q11   Which of the following is **NOT** a common approaches to interface design prototyping?

    A. Storyboards
    B. HTML Prototypes
    C. Language Prototypes
    D. Interface Evaluation

          (1 mark)

Q12   Format for entering inputs into a computer system based on collection over time is called _____.

    A. online processing
    B. batch processing
    C. bit by bit processing
    D. bundle processing

          (1 mark)

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Q13 Data storage; Data Access Logic; Application logic and Presentation Logic are basic functions of _____.

A. User Interface Components
B. Architecture Components
C. Acquisition Components
D. Software Systems Components

(1 mark)

Q14 _____ requirements is the basis in creating architecture design.

A. Functional
B. Non-Functional
C. User
D. System

(1 mark)

Q15 Which of these are **NOT** a factor in selecting hardware and software?

A. Cost of Ownership
B. Performance
C. Functions and Features
D. Operating System

(1 mark)

Q16 Which of the following is a type of an operational requirement?

A. Speed
B. Capacity
C. Portability
D. Access Control

(1 mark)

Q17 Which of the following is **NOT** a type of Security Requirement?

A. Speed
B. Capacity
C. Portability
D. Access Control

(1 mark)

Q18   A software that support different types of clients and servers is called _____ .

A. operating
B. application
C. middleware
D. freeware

(1 mark)

Q19   Which of the following is **NOT** a primary hardware component?

A. Client computers
B. Server
C. Network
D. Software

(1 mark)

Q20   A concept designing an interface application based on the real world is called interface _____ .

A. template
B. metaphor
C. objects
D. icons

(1 mark)

Q21   Answer **Q21 (a) – Q21 (b)** based on **Figure Q21**.

```
E-Sports Club at Gemilang College maintains data about the
following entities:

    (a) members, including matric number, IC numbers, name,
    faculty, programme, phone numner, address, and year of
    study;
    (b) club activities
    (c) attendance
    (d) program director for each club activities
    (e) club advisor

A student required to registered to allowed them in joining
one or more clubs' activities. Any program director can
proposed and registered new activities for the student to
join. This activities need to be approved by club advisor.
```

Figure Q21

6

(a)   Draw an entity-relationship diagram based on the information provided in **Figure Q21**.

(20 marks)

(b)   Describe each of the following concepts. Give an example to support your answer.

(i)   Foreign Key

(3 marks)

(ii)   Composite key

(3 marks)

(c)   Give **ONE (1)** difference between strong and weak entity types. Provide an example each type.

(4 marks)

Q22   (a)   What is DFD semantic error? Provide an example.
        (Explain the meaning of DFD semantic error with an example)

(4 marks)

Answer **Q22(b)-Q22(d)** based on **Figure Q22**.

Rakan Muda Club (RMC) is an innovative young firm that sells memberships to people who have an interest in certain products. People pay membership fees yearly and monthly, and receive a product by mail. For example, RMC has a sports club that sends members coupon of RM5 of using several courts in Parit Raja Sport and Recreation Center each month. RMC currently has six membership types(Sports, Coffee, Book, Cinema, Computer Game, Travel), each of which costs a different amount. Customers usually belong to just one type of membership, but some belong to two or more types of membership. When people join RMC, the telephone operator records the name, mailing address, phone number, email address, credit card information, start date, and membership service(s) (e.g. Sports). Some customers request a double or triple memberships (e.g. two coupons of Sports, three pounds of coffee). The computer game membership operates a bit differently from the others. In this case, the member must also select the type of game (action, arcade, fantasy/ science fiction, educational, etc.) and age level. RMC is planning to greatly expand the number of memberships it offers (e.g., video games, toys, foods, groceries), so the system needs to accommodate this future expansion. RMC is also planning to offer three-month and six-month memberships.
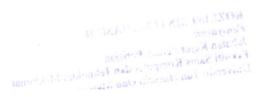
Figure Q22

(b) Develop a context diagram.

(6 marks)

(c) Develop a level 0 diagram.

(10 marks)

(d) Develop structured English for the statement of RMC joining services choice (line 8-15)

(10 marks)

Q23 Suggest an acquisition strategy for the construction of the system in each of the following scenario. Justify your answer.

(a) The academic management of National University (NU) has introduced the new regulations for students' course registration. Thus, NU is interested in creating a new course registration system that could support web and mobile-based registration.

(5 marks)

(b) Audio Tunes plan to have a new system for a multi-state chain of video stores. Each store will run a fairly standardized set of video store processes (video catalogue inventory, customer registration, video rentals, video returns, overdue fees, etc.). In addition, each store's system will be networked to the corporate offices for sales and expenditures reporting.

(5 marks)

Q24 Determine **FIVE (5)** bad report designs in **Figure Q24**. Relate each design with Report Design Principles.

ABC Sdn. Bhd.					
Paper type and Reams Consumed					
Paper Consumer	Month	Std 81/2 x 11	Std 81/2 x 14	82–105 g/m2	106–169 g/m2
General Accounting	January	21	0	5	2
Sales and Marketing	January	55	2	30	25
Executive Administration	January	16	2	12	5
Chief Legal Officer	January	5	40	1	0
Billing and Receivables	January	6	1	0	30
Manufacturing and Manager	January	8	0	1	0

Figure Q24: Report of Paper Consumption

(10 marks)

- END OF QUESTIONS -

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