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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2018/2019**

COURSE NAME : SYSTEM ANALYSIS AND DESIGN
COURSE CODE : BIC 21003
PROGRAMME CODE : BIS / BIP / BIW / BIM
EXAMINATION DATE : DECEMBER 2018 / JANUARY 2019
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF NINE (9) PAGES

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- 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
- 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
- Q3** A payroll data flow diagram has a data-store called Accumulated Salary Data. At one stage in the DFD, a process "Calculate YTD-Taxes" gets data from that data store, updates it in the process, and writes it back out. The 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
- Q4** Faisal has a data store called 'Items' and it includes all the items sold in a convenience store – sorted by UPC code with the retail price of the item. He has only one data flow called 'Item Details' that flows from the data store to the Process Checkout 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.

- 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
- 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.
- 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.
- 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.
- Q9** Which element is **NOT** a principle of User Interface Design?
- A. User experience.
 - B. Consistency.
 - C. Eye Pleasing.
 - D. Aesthetics.

- Q10** Three-clicks rule is used when
- A. Minimizing user effort
 - B. Ease of Use
 - C. Navigation Easy
 - D. User-friendly
- Q11** Which is **NOT** a common approach to interface design prototyping?
- A. Storyboards.
 - B. HTML Prototypes.
 - C. Language Prototypes.
 - D. Interface Evaluation.
- 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
- Q13** Data storage; Data Access Logic; Application logic and Presentation Logic: These elements are basic functions of _____.
- A. User Interface Components
 - B. Architecture Components
 - C. Acquisition Components
 - D. Software Systems Components
- Q14** _____ requirements is the basis in creating architecture design.
- A. Functional
 - B. Non-Functional
 - C. User
 - D. System

- 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
- Q16** Which of the following is a type of an operational requirement?
- A. Speed.
 - B. Capacity.
 - C. Portability.
 - D. Access Control.
- Q17** Which is **NOT** a type of Security Requirements?
- A. Speed.
 - B. Capacity.
 - C. Portability.
 - D. Access Control.
- Q18** A software that support different types of clients and servers is called ____.
- A. Operating
 - B. Application
 - C. Middleware
 - D. Freeware
- Q19** Which is **NOT** a primary hardware component?
- A. Client computers.
 - B. Server.
 - C. Network.
 - D. Software.

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

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

(20 marks)

Q21 Recommend which acquisition strategy for the construction of the system in the following scenario. Justify your answer.

(a) Abu Grocery Shop Sdn. Bhd plan to have a system that can process their sales, handle inventory tracking and sales monitoring and reporting.

(5 marks)

(b) 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)

(c) 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 (cataloging video 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 expense reporting.

(5 marks)

Q22 Answer **Q22 (a)** – **Q22 (b)** based on **Figure Q22**.

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

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

Student need to registered to allowed them in joining one or more clubs' activities. Any program director can proposed and registered new activities that can be join by students. This activities need to be approved by club advisor.

Figure Q22

- (a) Draw an entity-relationship diagram based on the information provided in **Figure Q22**.
(20 marks)
- (b) Describe each of the following concepts, and give an example.
 - (i) Foreign Key
(3 marks)
 - (ii) Composite key
(3 marks)
- (c) Give **ONE (1)** difference between strong and weak entity types and provide an example of each.
(4 marks)

Q23 Suggest the architecture design that would support the following software/application/information system. Elaborate your answer.

(a) A new application to support retail sales over the web. (5 marks)

(b) Software that students at a school can use to find out what their current grade is in all their classes. (5 marks)

Q24 (a) What is meant by a DFD semantic error? Provide an example. (4 marks)

Answer **Q24(b)-Q24(d)** based on **Figure Q24**.

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

Figure Q24

(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 9-16). (10 marks)



Q25 Determine **FIVE (5)** bad report designs in **Figure Q25**. Relate each design with Report Design Principles.

ABC Sdn. Bhd.					
Paper Consumer	Month	Paper type and Reams Consumed			
		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 Q25: Report of Paper Consumption

(10 marks)

- END OF QUESTION -

