**Section: A**

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| **Q1:** | In the Loan table from ER diagram below, EmployeeId is  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_909267239_-2025101762.jpeg | **Mark (1)** |
|  | Duplicate Key | |
|  | None of these options | |
|  | Foreign Key | |
|  | Composite Key | |
|  | Primary Key | |

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| **Q2:** | Which of the followings is true about NFC technology? | **Mark (1)** |
|  | Contactless communication within 4cm | |
|  | All the options | |
|  | ISO14000 standard | |
|  | Operates at a frequency of 436MHz | |
|  | Works same as GPS | |

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| **Q3:** | Which temperature range would you recommend for a data centre? | **Mark (1)** |
|  | 24.5° C to 25.9° C | |
|  | 26.5° C to 27.9° C | |
|  | 16.5° C to 17.9° C | |
|  | 21.5° C to 22.9° C | |
|  | 13.5° C to 14.9° C | |

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| **Q4:** | Which of the following scenarios are suitable for RPA?  *1.     Prepare appreciation email to all participants of an event*  *2.     Update new employee information (in MS Word) into company’s HR system*  *3.     Type ‘Y’ when record shows ‘yes’, and type ‘X’ if record shows ‘no’*  *4.     Decide the next course of action when sales target is not met* | **Mark (1)** |
|  | 1, 2, and 4 | |
|  | 2, 3, and 4 | |
|  | 1, 2, and 3 | |
|  | 1, 3, and 4 | |
|  | 1, and 2 | |

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| **Q5:** | What is the best solution for memory bottleneck(s)? | **Mark (1)** |
|  | Empty temporary files | |
|  | None of these options | |
|  | Install a faster hard disk | |
|  | Install more RAM | |
|  | Install a faster processor | |

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**Section: B**

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| **Q6:** | Leena has taken a short course in VBA programming during holidays. Last week, you met her, and she told you that ‘Information Technologies is all about the programming’. Do you agree with her statement as a good representation of Information Technologies as a whole? Support your reasoning with **ONE (1)** suitable example. | **Mark (3)** |
|  |  | |
|  | Word Count: 27 | Max Words: 1000 |

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| **Q7:** | The following shows a snapshot of descriptions of a dual-camera in-car video recorder system. These days almost all the vehicles are equipped with such device(s). Identify **ONE**(**1**) type of information technology (***Hardware, Software, Network, Data Resource Management***) for each item below and fill in the blank accordingly. (Note: each category can be repeated and if there is none, fill in as ***Nil***.)   |  |  | | --- | --- | | ***Descriptions*** | ***Type of Information Technology*** | | Video Recording Module – with loop recording, motion detection, time stamp. Data is obtained from built-in tool or external GPS.  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_-577692457_1554907501.jpeg  - | () | | Display LCD monitor: 2.5”TFT LCD  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_-577692457_-1336646417.jpeg | () | | The receipt of GPS location data from satellite through external USB GPS receiver.  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_-577692457_-548575882.jpeg | () | | Internal memory 16GB (ROM), and storage slot MicroSD / TF card slot up to 128GB. | () | | Data base used to store GPS data, date/time info, images and video files | () | | **Mark (5)** |

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| **Q8:** | DK Logistics has identified a company Infinite Cloud Solutions which provides cloud services at affordable rates. DK Logistics would like to evaluate the server availability from the past outage history. Below are the details for last three months.   |  |  | | --- | --- | | **Month** | **Outage** *in hours* | | September | 14.5 | | October | 15 | | November | 14 |   DK Logistics desires the availability level of 98%. Does Infinite Cloud Solutions’s service meet the desired level for the above data? Give your reasoning. | **Mark (5)** |
|  |  | |
|  | Word Count: 121 | Max Words: 1000 |

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| **Q9:** | Currently, DK Logistics receives invoices thru emails from suppliers. The data is then transferred from emails into SAP for further processing by Finance department. Two staff from purchasing department were exclusively assigned for this task. In spite of simple and straight forward process, a few errors are reported every day. The management is now looking for the ways to improve the situation without hiring new staff and/or transferring the staff. What is your recommendation? Give your reasoning. | **Mark (2)** |
|  |  | |
|  | Word Count: 32 | Max Words: 1000 |

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**Section: C**

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| **Q10:** | Figure 3.1 illustrates the components of RFID system designed for the implementation of a “Networked Parking System” by Zikon Logistics in Singapore. C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_2018695282_2012298291.jpeg **Figure 3.1**  Identify the RFID components: **A** and **B**, and suggest the network technology **C** that enables the information flow from the gantry system to the Router and from the Router to PC/Server. Fill in the blanks **A**, **B**, and **C**.   |  |  | | --- | --- | | **A** | () | | **B** | () | | **C** | () | | **Mark (3)** |

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| **Q11:** | Currently, the frequency designed for use is UHF for the parking system shown in Figure 3.1. Do you think HF can be used based on the current configuration whereby vehicle can be detected from a distance of 3.5m? Give your reasoning. | **Mark (3)** |
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|  | Word Count: 30 | Max Words: 1000 |

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| **Q12:** | In order to enhance security after truck clearance at the gantry, one senior warehouse manager suggests implementing Biometricrecognition technology to authenticate driver’s entrance to the premises. However, the warehouse supervisor feels that implementing barcode reading system to scan driver’s NRIC will do. Which method do you support? Give a reason to support your answer over the other method. | **Mark (3)** |
|  |  | |
|  | Word Count: 38 | Max Words: 1000 |

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| **Q13:** | Zikon Logistics wants to track metal containers in warehouse from the control area, which is situated at a distance of 12m. Recommend suitable tag and the frequency. Give your reasoning. | **Mark (3)** |
|  |  | |
|  | Word Count: 35 | Max Words: 1000 |

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| **Q14:** | Discuss any **TWO (2)** advantages of using handheld devices to carry out warehouse operations. | **Mark (4)** |
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|  | Word Count: 38 | Max Words: 1000 |

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**Section: D**

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| **Q15:** | Figure 4.1 shows an ER diagram created for the sales department of DK Aviation Services to monitor the shipment activities. C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_626795987_576925131.jpeg **Figure 4.1**  Suggest suitable data type and length for each of the following fields.   |  |  |  |  | | --- | --- | --- | --- | | **S.No.** | **Field Name** | **Description** | **Data type** | | 1. | FlightNo | FlightNo allows maximum of seven (7) characters, which indicates aircraft from different airlines (e.g. SQ321 or CA1208). | () | | 2. | DepartureTime | Time when aircraft takes off. It contains only the time information (e.g. 1830) | () | | 3. | FrequencyofOperation | Frequency of operations indicates the  number of days in a week whereby  there is flight for a particular aircraft. It  is alphanumeric. (e.g. The string “X234X67” indicates that it operates on Tue, Wed, Thu, Sat and Sun. X indicates days it is not operating on Mon and Fri). | () | | 4. | TotalWeight | Permitted total weight of the shipment is below 1000kg, and has two decimal places. | () | | 5. | CustomerID | It is represented in three numeric digits (e.g. 123 or 98) for identifying the customer, used in creating the orders and invoices. Currently, company has 178 customers. | () | | **Mark (5)** |

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| **Q16:** | Referring to ER diagram in Figure 4.1, suggest a suitable data type for implementation of “AdditionalInfo” field. Give a reason to support your answer. | **Mark (2)** |
|  |  | |
|  | Word Count: 34 | Max Words: 1000 |

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| **Q17:** | For the implementation of ‘AdditionalInfo’ in physical database for operations, can you allow NULL values in the field? Give your reasoning. | **Mark (2)** |
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|  | Word Count: 32 | Max Words: 1000 |

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| **Q18:** | While creating the physical database for Figure 4.1, the shipment table was not created correctly. The SQL query statements are required to modify the shipment table. Classify the SQL query statement into (*Database Definition Language* / *Database Manipulation Language* / *Database Control Language*). Fill in the blank below.  () | **Mark (3)** |

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| **Q19:** | Vice President (sales) would like to know how many customers are served by the company. Write an SQL query to find out the number of customers. | **Mark (2)** |
|  |  | |
|  | Word Count: 4 | Max Words: 1000 |

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