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| Question 1: Answer the following questions:  A. What do you understand from business operating system? Write your response in 50-100 words.  B. What are the five (5) components of business operating system relating to data sources? Summarise each component in 50-100 words.  C. Explain two server operating systems that can be used for medium and large business. Answer in 150-250 words. |
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| A: **What do you understand from business operating system? Write your response in 50-100 words.**  An operating system (OS) is software that acts as an interface between a computer's hardware components and the user. Every computer system must have at least one operating system to run other programs. Applications like browsers, MS Office, notepad games, etc., need some environment to run and perform their tasks.  Operating systems help you communicate with a computer without knowing how to speak its language. Without an operating system, users will not be able to use any computer or mobile device  **B: What are the five (5) components of business operating system relating to data sources? Summarise each component in 50-100 words.**  **Processes：**A process is the execution of a program that performs the action specified in that program. It can be defined as the execution unit of the running program. The operating system helps you create, schedule, and terminate processes that use CPU. Processes created by the main process are called child processes.  **Systems：**A system is a program, process, method, or course of action designed to achieve a specific result. Its components and interrelated steps work together for the benefit of the whole. Creating effective business systems is the only way to achieve consistent, measurable results that ultimately benefit customers.  **Roles：**System roles and business roles.  The permissions of system roles are used to control the permissions of customer management, system Settings, and work center modules. The system preset the super administrator, general manager, department manager, employee, and cashier roles. The permissions of the super administrator cannot be modified, while the permissions of the other roles can be modified. You can add, modify, and delete system roles as required.  Second, the authority of the business role is used to control the use of each module in the account set. Service roles The system has preset roles such as account set administrator, bookkeeper, viewer, and tax preparer. The operation rights of each role can be modified.  **Skills：**Skills required to become an operating system expert: 1. Clearance. high Demand Here's how Clearance is used in Operating Systems Specialist jobs: 2. Continuous Improvement. 3. Technical Support. 4. Customer Service. 5. Data Entry.  **Structure：**Business architecture is defined as "an enterprise blueprint that provides a common understanding of the organization and is used to align strategic goals and tactical requirements.  **C: Explain two server operating systems that can be used for medium and large business. Answer in 150-250 words.For mid-sized businesses:**  Ubuntu OS and Ubuntu Server are excellent choices.  Reasons: 1. It's free and easy to install  2. In the operating system, the name is a trusted name. Because it is open source, it can be customized according to the needs of enterprises to meet the business needs of medium-sized enterprises. The development community is always working on new ways to improve the system, and it can be very helpful when users have questions or concerns. Ubuntu can be suitable for both small and medium businesses, but it's a good choice anyway because of its scalability.  Large enterprises:  Windows 10 is still what most businesses need.  1. Not all software is compatible with the Linux operating system, which makes it sometimes difficult to use.  2. Most people are familiar with Windows, so there is no problem trying to learn the new system. It is easier to use than some Linux-based distributions. Not all computer hardware can use the latest software, but Microsoft OS is more compatible.  Windows 10 also offers different operating systems based on the needs of the enterprise. Windows 10 Enterprise E3 is designed for large enterprises and provides privacy and security across all devices. Windows 10 Enterprise E5 is the latest operating system designed for companies that need advanced threat protection. |

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| Question 2: Summarise the following answers:  A. What is meant by database management System-DBMS? Write your answer in 50-100 words.  B. What are the five (5) fundamentals of Database Management System-DBMS that are used for the extraction of data? Write your response in 50-100 words. |
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| 1. **What is meant by database management System-DBMS? Write your answer in 50-100 words.**   A database management system (DBMS) is a software system for storing, retrieving, and running data queries. The DBMS acts as an interface between the end user and the database, allowing users to create, read, update, and delete data in the database.  **B. What are the five (5) fundamentals of Database Management System-DBMS that are used for the extraction of data? Write your response in 50-100 words.**  • Data: DATABASE management systems provide a vehicle for collecting, storing, processing, and accessing data. This data includes actual data as well as metadata.  • Hardware: These are physical electronic devices, such as computer systems, that act as storage devices for interfaces between computers and real-world systems.  • People: The users who manage the various parts of the database management system make up the bulk of the database management ecosystem. These include professionals such as database administrators, application programmers, and end users of developed applications.  • Procedures: Procedures are rules that guide the design and operation of a database. This process helps to design the database to match the requirements of a given database management system.  • Software: This is the basic set of instructions that guide the operation of the database management system. A good piece of software must be able to understand the database access language and then translate it into actual database commands that can be executed on the database. |

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| Question 3: Answer the following questions:  A. What do you understand from the term Big Data? Write your response in 50-100 words.  B. Explain any three (3) corporate sectors who are benefited by the use and management of Big Data? Write 50-100 words for each corporate sector. |
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| **A. What do you understand from the term Big Data? Write your response in 50-100 words.**  "Big data" refers to very large data sets. A report from the NATIONAL Institute of Standards and Technology defines big data as "a broad set of data compositions -- primarily in terms of quantity, speed, and/or variability -- that require scalable architectures to enable efficient storage, manipulation, and analysis. Some people define big data as more than one petabyte (one million gigabytes) of data.  **B. Explain any three (3) corporate sectors who are benefited by the use and management of Big Data? Write 50-100 words for each corporate sector.**  1. Transport and logistics:  This is the input location for the list of data visualization tools. Use data from geographic information systems to make informed choices when creating urban areas that encompass parking Spaces, parks, and venues.  For businesses that rely primarily on their fleets, the best data visualization tools can make service easier with timely information and engaging maps that are combined with automatically updated elements such as video tracking and unit and workload solutions.  2. Medical  Public health officials can benefit from data visualization technologies, such as a thorough overhaul of public health through a GEOGRAPHIC information system platform that gives them an overall picture of available health care staff and equipment so they can allocate them efficiently based on current needs.  With data visualization tools, anyone can effectively keep tabs on COVID-19 in their area. Businesses can find out how the pandemic will affect their operational and social environments by using smart maps showing the latest information about the coronavirus. Demographic and healthcare infrastructure locations can also be identified to provide solutions within risk areas.  3. The environment  Data visualization tools such as GIS models and maps are the backbone of public service initiatives seeking sustainability and the action plans and risk reduction strategies of environmental enterprises. |

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| Question 4: Answer the following questions.  A. Briefly explain the knowledge management strategy. Answer in 40-80 words.  B. Explain decision support system (DSS). Answer in 40-80 words.  C. How will you identify and apply decision support systems related to organisational knowledge management system? Answer in 80-150 words. | Satisfactory response | |
| A. Yes  B. Yes  C. Yes | No  No  No |

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| 1. **Briefly explain the knowledge management strategy. Answer in 40-80 words.**   A knowledge management strategy is an action plan for a business that Outlines how an organization will manage and centralize corporate information, data, and knowledge to improve the overall productivity and efficiency of the business. The most successful of these strategies are closely related to the goals of individual departments and companies.  **B. Explain decision support system (DSS). Answer in 40-80 words.**  A decision support system (DSS) is a computerized program used to support determination, judgment, and action plans in an organization or enterprise. DSS filters and analyzes large amounts of data, compiling comprehensive information that can be used to solve problems and make decisions.  **C. How will you identify and apply decision support systems related to organisational knowledge management system? Answer in 80-150 words.**  **Identify:**  A decision support system (DSS) is a computerized system that collects and analyzes data and synthesizes it to produce comprehensive information reports.  Decision support systems are different from ordinary operational applications, which simply collect data.  Decision support systems allow more informed decisions, timely problem resolution, and improved efficiency in problem solving or operations, planning, and even management.  **Application:**  DSS can be used by operations management and other planning departments in an organization to compile information and data and synthesize it into actionable intelligence. In fact, these systems are mostly used by middle and senior managers.  DSS can be used to predict a company's future revenue based on the sales of its products. This can be done manually due to a number of factors surrounding projected revenue figures. However, DSS can integrate all multiple variables and generate results and alternative results, all based on the company's past product sales data and current variables. |

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| Question 5: Summarise the following for database security features:  A. Encryption  B. Authentication  Write 100-150 words for each. | Satisfactory response | |
| A. Yes  B. Yes | No  No |

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| 1. **Encryption**   Data encryption is a secure method where we encode data by using a key to change the data from a readable form to an unreadable form. It can be converted back using another key, a process called decrypting or decoding the data. The encrypted data is called ciphertext that cannot be read or understood by a man-in-the-middle attacker. This protects our data  **B. Authentication**  Authentication is determining the identity of a user. Authentication technology provides access control to the system by checking that the user's credentials match those in the authorized user database or data authentication server. In this process, authentication secures security systems, security processes, and enterprise information. |

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| Question 6: Briefly explain two functions and features of dimension table and fact table. Write 100-150 words for each. | Satisfactory response | |
| Yes | No |

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| **Aimension table**  Functions：  The Dimension Attributes are the various columns in a dimension table.  Dimensions offers descriptive characteristics of the facts with the help of their attributes.  Features：  1. It helps store historical or dimensional information.  2. It is easier to understand than normalized tables.  3. You can add more columns to the table without affecting existing applications that use these columns.  **Fact table**  Functions：  1. It contains quantitative information for analysis.  2. It contains performance metrics that are usually normalized.  Features：  Key: It has a key or a primary key, which is the accumulation of all primary keys of all dimension tables linked to it. This key, called a concatenation key, helps to uniquely identify rows.  Fact data table granularity: The granularity of a table indicates the level of detail or depth of information contained in the table. The efficiency of the meter is proportional to the e level.  Reduced summary dimensions: Reduced summary dimensions are subdivisions of the base dimensions. |

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| Question 7: Answer the following questions:  A. Explain proprietary software and its usage in 100-150 words.  B. Considering the example of MS Office 2016 as a proprietary software, explain the steps involved in its installation and provide screenshots. Answer in 400-600 words. | Satisfactory response | |
| A. Yes  B. Yes | No  No |

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| 1. **Explain proprietary software and its usage in 100-150 words**   Proprietary Software means any software that is copyrighted and has restrictions on its use, distribution, and modification imposed by its distributor, supplier, or developer.  With proprietary software, only the author can see the source code, which means that only the author can fully understand how it works, make changes to the code and distribute it.  **B:**  If this is your first time installing Office, you may need to perform some setup steps first. Expand the Learn More section below.  However, if you are reinstalling Office and have redeemed your product key and have an account associated with Office, go to the "Login" section to download Office.  Log in to download Office  1.Go to your Microsoft account dashboard and select "Log in" if you are not already logged in.  2.Log in using the Microsoft account you associate with this version of Office.  3.Forgot your account details? See the account I forgot to use on Office.  4.At the top of the page, select Services and Subscriptions, then locate the Office product you want to install on that page, and select Install.  5.To install Office in another language, or to install a 64-bit version, select the link "Other Options." Select the language and bit version you want, and then select Install.  6.You are now ready to install Office. Select the TAB below for the version you want to try to install  Install Office 2019 or 2016 on your PC  Keep in mind that the one-time purchase version of Office is only licensed for one install.  1.Depending on your browser, choose Run (in Edge or Internet Explorer), Settings (in Chrome), or Save File (in Firefox).  If we see a "User account Control" prompt that says "Do you allow this application to make changes to your device?" Select Yes.  Installation begins.    2. When you see the phrase "Ready! Office is installed "and plays an animation to show where you are looking for Office applications on your computer. Select Close.  Follow the instructions in the window to find your Office application. For example, depending on your version of Windows, select "Start" and scroll to find the app to open (such as Excel or Word), or type the name of the app in the search box.    Installation or login problems?  If you are unable to install Office, see Installing Office Troubleshooter for more help.  Activating the office  Start using Office applications immediately by opening any application, such as Word or Excel. Can't find Office after installing?  In most cases, Office is activated after you launch the application and after you agree to the license terms by selecting "Accept."  Office may be activated automatically. However, depending on your product, you may see the Microsoft Office activation wizard. If so, follow the prompts to activate Office. |

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| Question 8: Answer the following questions.  A. What is logical database model? Answer in 50-100 words.  B. Why you need to understand logical database model to perform data extraction? Answer in 40-80 words. | Satisfactory response | |
| A. Yes  B. Yes | No  No |

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| **A. What is logical database model? Answer in 50-100 words.**  A logical data model is a problem domain-specific data model that is independent of a specific database management product or storage technology (physical data model) representation, but is related to data structures such as relational tables and columns, object-oriented classes, or XML tags.  **B. Why you need to understand logical database model to perform data extraction?**  Because a logical data model (LDM) defines the structure of data elements in terms of basic business requirements and their relationship to business requirements, not having a logical data model in place is a missed opportunity to improve business processes. |

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| Question 9: Answer the following questions.  A. Explain the relationship between the Database and Data warehouse in 100-150 words.  B. What do you understand from Data warehouse agent? Write your answer in 100-150 words.  C. List the five (5) steps involved in developing the Data Warehouse. | Satisfactory response | |
| A. Yes  B. Yes  C. Yes | No  No  No |

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| **A. Explain the relationship between the Database and Data warehouse in 100-150 words.**  A data warehouse is an information system used to store historical data and exchange data. A database is a collection of related data that represents some element of the real world. Databases are used to record data, while data warehouses are used to analyze data.  A database is an application-oriented collection of data, while a data warehouse is a subject-oriented collection of data.  Databases use online transaction processing (OLTP), while data warehouses use online analytical processing (OLAP).  Database tables and joins are complex because they are normalized, whereas data warehouse tables and joins are easy because they are de-normalized.  **B. What do you understand from Data warehouse agent? Write your answer in 100-150 words.**  The warehouse agent is a component of the DB2 warehouse manager that can be used to control the flow of data between all data sources and targets on different machines. The agent site is the computer on which the Warehouse agent is installed. Tivoli Data Warehouse can be installed on both Windows and UNIX operating systems.  By default, the control server uses the local warehouse agent to manage the data flow between the operational data store, the central data warehouse, and the data mart. We can create proxy sites on Windows and UNIX systems. The control server can use agents on these remote machines to manage the data flow. In a distributed deployment, the performance of a Tivoli data warehouse is improved by creating a proxy site on a computer that is the target of data transfer for a central data warehouse ETL or data mart ETL.  **C. List the five (5) steps involved in developing the Data Warehouse.**  1.Extract transaction data from the data source and move it to the staging area  2.Transform transaction data  3.Load the transformed data into the dimension database  4．Build precomputed summary values to speed up report generation  5.Build front-end reporting tools |

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| Question 10: Answer the following questions:  A: What are the different levels of technical documentation to consider for the newly developed DBMS? Answer in 50-100 words.  B: What is meant by data catalog in terms of data warehouse? Write your response in 100-150 words.  C: List the eight (8) types of costs to consider while creating e-business budgeting. | Satisfactory response | |
| A. Yes  B. Yes  C. Yes | No  No  No |

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| **A: What are the different levels of technical documentation to consider for the newly developed DBMS**  There are three levels of this architecture:  1. External level  2. Conceptual level  3. Internal level  The external level  It is also called the view level. Multiple users can view the required data from this level, which is retrieved from within the database with the help of conceptual and internal level mapping.  The external level is the "top layer" of the three-level DBMS architecture.  2. Conceptual level  It is also known as the logical level. The entire design of the database, such as relationships between data, data schemas, and so on, is described at this level.  Database constraints and security are also implemented in this level of architecture. This level is maintained by the DBA (database administrator).  3. Internal level  This level is also called the physical level. This level describes how data is actually stored on storage devices. This level is also responsible for allocating space for data. This is the lowest level of architecture.  **B: What is meant by data catalog in terms of data warehouse?**  A data catalog maintains an inventory of data assets through the discovery, description, and organization of data sets. The catalog provides a context that enables data analysts, data scientists, data administrators, and other data consumers to find and understand relevant data sets to extract business value.  **C:List the eight (8) types of costs to consider while creating e-business budgeting.**  Website construction and hosting  Platform to pay  shipping  Permits and licenses  Equipment and asset maintenance  Marketing and Advertising  Network security |

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| Question 11: Answer the following questions:  A. What do you understand from database design? Write your answer in 50-100 words.  B. What are the six steps you will follow for best practices in database design?  C. What are the ten (10) considerations you will follow while developing a business security plan? | Satisfactory response | |
| A. Yes  B. Yes  C. Yes | No  No  No |

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| **A. What do you understand from database design?**  A good database design is:  1. Ability to divide information into topic-based tables to reduce complex and unnecessary data.  2. Provide Access with the information needed to join the information in the table together as needed.  3. Can help support and ensure the accuracy and completeness of information.  4. Meet users' data processing and reporting requirements.  **B. What are the six steps you will follow for best practices in database design?**  1. Form structure and usage.  2. Choose the right data modeling software.  3. Outline requirements  4. Model the data carefully  5. Use appropriate data types  6.Define or adopt a style guide  **C. What are the ten (10) considerations you will follow while developing a business security plan?**  1. Identify risks  2. Make sure our strategy meets legal requirements  3. Update your system  4. Invest in protection software and firewalls  5. More staff involvement in policy formulation should be encouraged  6. Train employees：Introduce them to potential security threats to which the organization is vulnerable.  7. Every employee must have read, signed and understood the policy.  8. Set clear penalties and enforce them  9. Integrate multi-layer security systems  10. Install required tools |

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| Question 12: Answer the following questions:  A: What are the two (2) approaches for developing knowledge management strategy? Answer in 50-100 words.  B: What do you understand from Business Processes? Write your response in 100-150 words.  C. Explain Operational Data Store in 100-150 words. | Satisfactory response | |
| A. Yes  B. Yes  C. Yes | No  No  No |

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| **A: What are the two (2) approaches for developing knowledge management strategy?**  There are two holistic approaches: top-down and bottom-up. The top-down approach considers the overall strategy of the enterprise, while the bottom-up approach focuses on the key business processes in the enterprise.  **B: What do you understand from Business Processes? Write your response in 100-150 words.**  Definition of a business process: A business process is a series of steps initiated by a group of stakeholders to achieve goals they have set. Each step in a business process represents a task assigned to an executing component.  The importance of business processes: The more the needs and benefits of business processes are embodied in a large enterprise, the more practical they are. Business processes form the lifeblood of any enterprise, helping to streamline its activities and leverage its most critical resources.  Seven steps in the business process life cycle:  1. Define your goals  2. Planning process  3. Set, operate and allocate stakeholders,  4. Test process  5. Implementation process  6. Monitor results  7. Repeat  **C. Explain Operational Data Store**  The Business Data Store (ODS) is a central database that provides real-time data from multiple transactional systems for business reporting. It enables organizations to combine data from different sources in their original format into a single target to make it available for business reporting.  ODS contains up-to-date information integrated from operational sources and supports business intelligence tools that aid tactical decisions. For example, an administrator can set up the ODS to extract weekly batches of data from a billing application that is rarely updated, introduce individual transaction records as they occur in the sales database, and then merge the two into a new relational table. Therefore, querying and reporting business data in ODS ensures that these composite tables contain the latest relevant snapshots of the enterprise. |

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| Question 13: What are the five stages of ETL testing? | Satisfactory response | |
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| **What are the five stages of ETL testing?**  ETL consists of five steps: extraction, cleaning, transformation, loading, and analysis.  1. Data extraction: In extraction, the required data is extracted from unstructured databases and sources. Extract only the estimated amount of data from each data source. It is then transferred to the temporary staging data repository. The extracted data has no negative impact on the database.  2. Clear data  Cleansing ensures that high-quality data is extracted from unstructured data pools. In addition, it ensures that only high-quality data is converted.  3. Transform data  Transformation refers to the preparation of data for analysis in two ways:  Clean up the data  Aggregate data  4. Load data  After the transformation, the data is loaded into the repository. Check for defects in the loaded data.  5. Analyze data  After the data is loaded, it is analyzed in the warehouse. This process helps to gain business insights from the data. Data analysis tools are available to help analyze the data. |

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| Question 14: Briefly explain the factors can help you to manage changes in the organisation. Answer in 100-200 words. | Satisfactory response | |
| Yes | No |

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| **Internal factors:**  1. Management changes: We need constant management changes. If some employees in our organization lack skills and dedication for a long time, we must find a better employee to replace them. There are always problems of retirement and promotion transfer among employees, and each new employee will bring new ideas and new motivation to the organization.  2.Shortcomings of the existing structure of the enterprise: Every enterprise will have shortcomings of the existing structure, at this time, we need to optimize the enterprise structure, such as the following shortcomings:  More management  There is a lack of coordination between departments  There is a lack of uniformity in policy decisions  Lack of cooperation between lines and employees.  So we have to constantly update our existing structure, which is one of the internal factors that helps us manage organizational change and succeed.  **External factors:**   1. Political power: Political power at home and abroad has a very important influence on medium and large enterprises. In most countries, the government has a huge control and influence on business. For example, China has implemented the policy of reducing education pressure for primary and secondary school students, which has greatly impacted many educational institutions. 2. Market Conditions: Market conditions are dynamic. They are in this process of rapid change, customer needs, expectations are constantly changing.   For example, Nokia brand mobile phones occupy almost half of the mobile phone market in the era when smart phones are not popular. However, customers' demands are constantly expanding with the progress of The Times. When Nokia lacks the characteristics of smart phones, it cannot meet customers' demands and is gradually eliminated from the mobile phone market.  3. **Technology (Internal force):**  Technology is one of the main external force that demands change in management organizations.  For example, technology in enterprise change management is helping organizations become more aware of employees' experiences with the company. Technology allows employee feedback to be collected and data analyzed to create a better experience for employees. It turns out that more engaged and satisfied employees are more productive workers. |

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| Question 15: What are the six (6) steps involved in the implementation of the data warehouse? Write your answer in 150-250 words. | Satisfactory response | |
| Yes | No |

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| **Six (6) steps involved in implementing a data warehouse：**  ***Step 1: Determine Business Objectives***  As the enterprise continues to move forward, it needs to clearly understand business goals and identify business requirements. That is, we need to determine what is the business goals of the enterprise, the first step to achieve data warehouse is to determine the business goals.  ***Step 2: Collect and Analyse Information***  Start with the initial data collection, which is collected from available data sources to help familiarize the data. The following two actions must be performed, including data loading and data integration, in order to successfully collect data.  Next, the "rough" or "superficial" nature of the data obtained needs to be carefully examined and reported.  Then, you need to explore the data by solving data mining problems that can be solved through queries, reports, and visualizations.  ***Step 3: Identify Core Business Processes***  Organizations should look for processes that are critical to business operations and processes that can be used to provide competitive advantage. Key processes are operational processes that fall under the following categories: Developing vision and strategy developing and managing products and services Marketing and selling products and services.  ***4.Construct a Conceptual Data Model：***  Once the business process is identified, we need to develop a conceptual model for creating the data. We need to identify the topics that will be represented as fact tables and the dimensions associated with the facts. We need to identify key performance indicators for each business process and determine the format for storing the facts. Because the facts will eventually be aggregated to form an OLAP cube, the data needs to be in consistent units of measure. This process may seem simple, but it's not. For example, if the organization is international and stores monetary amounts, you need to select a currency. You then need to determine when to convert other currencies to the currency of your choice and the exchange rate that will be used. You might even want to track currency exchange rates as a separate factor.  **Step 5: Find the data source and plan the data transformation**  Once we have defined what we need to do, we must begin to act on how to achieve this plan. We need to determine where the key information is and how to move it into the data warehouse structure. Data needs to be moved into an integrated, consistent data structure.  **Step 6: Set Tracking Duration**  Data warehouse structures consume a lot of storage space, so you need to determine how to archive data over time. |

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| Question 16: What are the different tasks involved in the data warehouse maintenance? Write your response in 100-150 words. | Satisfactory response | |
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| 1. Track new metrics: The way we need to measure our business changes over time. Before we launch new products, study different user behaviors, or try to create predictive models. We need new metrics to track these different jobs. Sometimes this means creating new computed fields or new columns, views, or tables.  2. Discard the old indicator: The old indicator may become inaccurate or backward over time. If you do not discard the old indicator, other people may query the information and get the wrong information.   1. Processing permissions: We make sure that our BI Tools access levels reflect employees' employment status to help track users and prevent security issues. The primary priority of granting permissions is to prevent users from being able to access sensitive information or from accidentally deleting data that cannot be recovered. 2. Adjust for optimization: As our business grows and business goals change, our data should be updated in real time, so as the data grows, we need to consider whether to design data warehouse objects.   5. Continuous optimization of warehouse  Different data warehouses will have the option to check performance, but most provide the following methods:  Identify slow queries and add indexes  Identify common queries and create views |

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| Question 17: What are the factors you will consider for the users training? Write your response in 150-200 words. | Satisfactory response | |
| Yes | No |

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| 1. This training needs the support of the company's senior management, such as financial support, time support and site support. 2. Clarify the purpose of the training   3. Planning the training process: When making the training plan, we must conduct a demand analysis, take down the training delivery information, the location of users, etc.  4. Employees need a lot of training support to train them how to operate data warehouse applications, and to achieve this we need to prepare training courses. This allows for systematic training of employees.  5. Training assessment: establish pre-training assessment, in-training assessment and post-training assessment.  6. Training method selection:  For example: 1. Classroom or instructor guided training  2. Conduct online training through software simulation |

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| Question 18: Answer the following questions:  A. Summarise the definition of Data Validation in 50-100 words.  B. What are the different factors to consider while securing approval of an ICT project? Write your response in 50-100 words. | Satisfactory response | |
| A. Yes  B. Yes | No  No |

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| **A. Summarise the definition of Data Validation.**  Data validation refers to checking the accuracy and quality of the source data before using, importing, or otherwise processing it. Different types of validation can be performed depending on the target constraint or target. Data validation is a form of data cleansing.  **B. What are the different factors to consider while securing approval of an ICT project?**  1. Ensure that all stakeholders of this ICT project understand the background of this ICT project.  2. Whether the risks of ICT project implementation are controllable.  3. There are alternatives for this ICT project.  4 The structure of the ICT project is fully flexible.  5. Conduct training for this ICT project |