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13MCA455

Fourth Semester MCA Degree Examination, June/July 2017
Enterprise Resource Planning

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions.*

1   a.   Explain the different phases of BPR (Business Process Reengineering).   **(10 Marks)**
    b.   Explain data warehousing and its architecture.   **(10 Marks)**

2   a.   What is data mining? What are the technologies used in data mining?   **(06 Marks)**
    b.   What are the different styles of OLAP?   **(04 Marks)**
    c.   Describe SCM processes and participants with its advantages.   **(10 Marks)**

3   a.   Explain implementation methodology by Marlabs consulting firm with the neat diagram.   **(10 Marks)**
    b.   What are the rules for successful project management?   **(10 Marks)**

4   a.   What are the different subsystems of finance modules of an ERP system? Explain in detail controlling and treasury subsystems of finance module.   **(10 Marks)**
    b.   How does manufacturing respond to the customer?   **(10 Marks)**

5   a.   What are the major objectives of materials management?   **(04 Marks)**
    b.   How does HRM module helps the organization and HR managers?   **(06 Marks)**
    c.   List the different subsystems of sales and distribution module. Explain purchase order management and warehouse management subsystems of sales and distribution module.   **(10 Marks)**

6   a.   Explain the characteristics of ERP market Tiers.   **(10 Marks)**
    b.   Write a note on ERP vendors of the following :
         i) SAP AG   ii) ORACLE corporation.   **(10 Marks)**

7   a.   Explain the role of business analytics in ERP.   **(10 Marks)**
    b.   Explain Enterprise Application Integration [EAI] process with EAI implementation pitfalls.   **(10 Marks)**

8   a.   Explain the impact of SAAS and cloud ERP on the market with mobile ERP solutions.   **(10 Marks)**
    b.   How is ERP more efficient with the connection of internet and WWW?   **(10 Marks)**

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1a.Explain the different phases of BPR.(Business Process Reengineering). (10Marks)

Ans. Business Process Engineering means not just changes but dramatic change & improvement

Begin Organizational change:

Activities:
- Assess the current state of the organization
- Explain the need for change
- Illustrate the desired state
- Create a communications campaign for change

Begin the reengineering organization

Activities:
- Establish a BPR organizational structure
- Establish the roles for performing BPR
- Choose the personnel who will reengineer

Identifying BPR opportunities

Activities:
- Identify the core/high-level processes
- Recognize potential change enablers
- Gather performance metrics within industry
- Gather performance metrics outside industry
- Select processes that should be reengineered
- Prioritize selected processes
- Evaluate pre-existing business strategies
- Consult with customers for their desires
- Determine customer's actual needs
- Formulate new process performance objectives
- Establish key process characteristics
- Identify potential barriers to implementation

Understanding the existing process

Activities:
- Understand why the current steps are performed
- Model the current process

- Understand how technology is currently used
- Understand how information is currently used
- Understand the current organizational structure
- Compare current process with the new objectives

Re-Engineering the process

Activities:
- Ensure the diversity of the reengineering team
- Question current operating assumptions
- Brainstorm using change levers
- Brainstorm using BPR principles
- Evaluate the impact of new technologies
- Consider the perspectives of stakeholders
- Use customer value as the focal point

Blue-print the new business system

Activities:
- Define the new flow of work
- Model the new process steps
- Model the new information requirements
- Document the new organizational structure
- Describe the new technology specifications
- Record the new personnel management systems
- Describe the new values and culture required

Perform the transformation

Activities:
- Develop a migration strategy
- Create a migration action plan
- Develop metrics for measuring performance during implementation
- Involve the impacted staff
- Implement in an iterative fashion
- Establish the new organizational structures
- Assess current skills and capabilities of workforce
- Map new tasks and skill requirements to staff
- Re-allocate workforce
- Develop a training curriculum
- Educate staff about the new process
- Educate the staff about new technology used
- Educate management on facilitation skills
- Decide how new technologies will be introduced
- Transition to the new technologies
- Incorporate process improvement mechanisms

**1b.Explain data warehousing and its architecture. (10Marks)**

Data Warehouse-Designed to support decision making. Its primary goal is to provide access to the data of organization. The most important reason for separating data for business analysis from the operational data has always been the potential performance degradation on the operational system that can result from the analysis processes. High performance and quick response time is almost universally critical for operational systems.

These reasons to separate the operational data from analysis data have not significantly changed with the evolution of the data warehousing systems, except that now they are considered more formally during the data warehouse building process. Advances in technology and changes in the nature of business have made many of the business analysis processes much more complex and sophisticated. In addition to producing standard reports, today's data warehousing systems support very sophisticated on-line analysis including multi-dimensional analysis.

The various components of data ware house architecture are:
1.Summarized data
2. Operational Systems of records
3. Integration/transformational programs
4.Current details
5.Data warehouse architecture/metadata
6.Archives

Figure 1-1 Architecture of a Data Warehouse
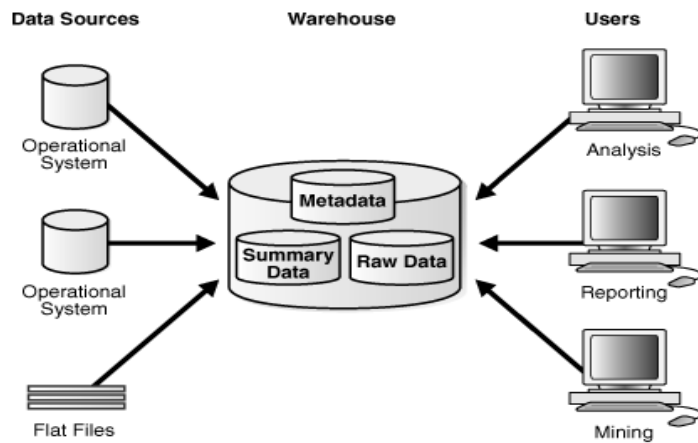
2a. What is data mining? What are the technologies used in data mining?

Data mining is
the process of collecting, searching through, and analyzinga large amount of data in a database, as to dis
cover patterns or relationships.

Technologies used in data mining
Neural networks-
Rule Induction
Evolutionary programming-
Case-based reasoning(CBR)-
Decision trees-
Genetic algorithms-
Non-linear regression methods-

2 b. What are the different styles of OLAP ?

OLAP (online analytical processing) is computer processing that enables a user to easily and selectively
extract and view data from different points of view.

Different Styles:

Multi dimensional: Based on multi-dimensional data base architecture. The stored data in three –dim
data cube which is in OLAP multi-dimension format for 'slicing and dicing' into analysis views. It is
suitable for applications requiring only pre-defined analysis on multiple dimensions.

Hybrid: integrates specialized multi-dimensional data storage with relational database management
technology.

Desktop: Allows users to perform limited analysis, directly against data held within a relational database,
while avoiding many of the problems that affect the hybrid and relational OLAP styles.

Relational: Fastest growing area of OLAP technology, with new vendors entering the market at an
accelerating pace. Relational OLAP products are designed to operate directly on a data warehouse built o
relational databases, through a comprehensive metadata layer.

2c. Describe SCM processes and participants with its advantages. **(10Marks)**
The SCM encompasses all activities relating to the supply chain. This includes vendor selection,
negotiation, relations and performance.

SCM processes and participants: Supplier, Distributor, manufacturer, Customer, Retailer, Logistics

Advantages of SCM:

Supply Chain Planning & Collaboration
Supply Chain Execution
Supply Chain Visibility design & analytics
Business benefits

3a. Explain implementation methodology by Marlabs consulting firm with the neat diagram.

(10Marks)

Off-Shore-Onsite ERP Implementation methodology:

Define:
      Project scope
      Work content definition
      Project plan
      Business requirements
      Conversions and interfaces
      User signoff

Design:
      Gap analysis
      Configuration of the base system
      Development of customization or extension
      Design of conversions
      Interface designs
      Solution foot print design signoff

Configure:
      Business process mapping to establish functional flows
      Development of custom code over and above base application functionality
      Solution footprint unit testing

Deploy
      Migration of tested code to the target instance for production
      Creation of base instance setups followed by conversions, interfaces and customization
      Ready for go-live

Support
      Help the client to build necessary skills
      Planning of transition for handover of the system to the client team.

3b. What are the rules for successful project management?   **(10Marks)**

  Rules for successful project management:
1. Have a clear, simple corporate vision and objective before you start, measure, and publicize successes as you proceed.
2. Have a group dedicated to business process improvements. Also, rely on experienced project managers .
3. Have successful project managers who are capable of anticipating what can go wrong. While they cannot identify every possible failure and mis-step, it makes a great deal of difference if we can spot at least a few of them.

4a.What are the different subsystems of finance modules of an ERP system? Explain in detail controlling and treasury subsystems of finance module.   (10 Marks)

The finance modules of most ERP systems will have the following subsystems:

1. Financial Accounting:
a. General Ledger
b. Accounts Receivable/payable
c. Special Ledgers,
d. Fixed Asset Accounting.
e. Legal Consolidation.

2. Investment Management:
a. Investment Planning
b. Budgeting
c. Controlling
d. Depreciation Forecast
e. Simulation of Calculation.

3. Controlling:
a) Overhead Cost Controlling.
 b) Activity- Based Costing
c) Product Cost Accounting
d)Profitability Analysis.
 e)Cost-Center controlling

4.Treasury Module
 Cash management
Treasury management
Market risk management
Funds management

5.Enterprise Controlling:
  Executive Information System
  Calculation of ROI
  Profit Center Accounting

4b.How does manufacturing respond to the customer?   (10Marks)

5a.What are the main objectives of the material management module.(04M)
1. Pre-purchasing activity
2. Purchasing
3. Vendor evaluation
4. Inventory management
5. Invoice verification & material inspection

the various subsystem of Human Resource module? Explain each subsystem in detail.(10M)

The different ERP system offers many subsystems under the HR umbrella.

The various subsystems under the HR module are:
1. Personnel Management:
(HR master data, Personnel administration, Information systems, Recruitment, Travel management, Benefits administration, Salary administration)
2. Organizational Management:
(Organizational structure, Staffing schedules, Job descriptions, Planning Scenarios, and Personnel cost planning)
3. Payroll Accounting:
(Gross / net accounting, History function, dialog capability,multi-currency capability, international solution)
4. Time Management:
(Shift planning, Work schedules, Time recording, Absence determination)
5. Personnel Development:
(Career and succession planning, Profile comparisons, Qualifications assessments, Additional training determination, Training and event management.

HR Module
Personnel management
Organizational management
Payroll accounting
Time management
Personnel development

Personnel management
Personnel administration
Employee master data
Information system
Recruitment
Travel management
Benefits administration
Salary administration

Organizational management
Organizational structure
Staffing schedules
Job Description
Planning Scenarios
Personal cost planning

Payroll accounting
Gross/Net accounting
History function
Dialog capability

Multi- currency capabilities
International solutions

Time management
Shift planning
Work schedules
Time recordings
Absence determination

Personnel development
Career and succession planning
Profile comparisons
Qualification assessments
Additional training determination
Training and event management

5 c. List the different subsystems of sales and distribution module. Explain purchase order management and warehouse management subsystems of sales and distribution module.

The different subsystems of sales and distribution module are :

.Master Data Management

- Order Management
- Warehouse Management
- Shipping
- Billing
- Pricing
- Sales Support
- Transportation
- Foreign Trade

Purchase Order management: It enables a company to make the correct purchase decisions about quality price, where quality refers to supply lead time as well as to the product itself.
Purchase order management includes
Online requisitioning,
 centralized contract management,
 just –in-time schedules,
vendor management.
The functions of Warehouse management are:-
 This module provides real time information about inventory levels across the enterprise and tools to manage the daily operational needs of single-site or multiple –site for warehouses.
The components of this module includes:-
Inventory Planning:-
        Comprises all planned inventory movements ,which enable the accurate forecasting of trends and the consequent adjustment of reordering points, safety stock, lead times for orders and service levels.

Inventory Handling:-   It allows for monitoring of all warehouse scenarios such as receipt, issue and transfer of inventory.

Intelligent Location Assignment:-
       Used to create intelligent storage put-away lists, which enable the storage of goods that are automatically inspected for quality and the detector of dedicated locations by criteria such as item, storage conditions, packaging definitions, size restrictions and location availability.

Inventory Reporting:-
       This function permits full visibility of inventory at single or multiple
Or multiple sites and provides a company with the tools to give customers accurate delivery dates.
Inventory Analysis:-
       This module enables the analysis of information that result from warehousing activities and use of feed back in process optimization.

Lot Control:-
       This facility offers lot tracking, so that a company can trace all the raw materials and finished gods that its products require.

Distribution Data Collection:-
       This is an essential element in paperless warehousing that provides the communication link between storage and shipping systems and warehousing equipment like bar-coding statements.

6a.Explain the characteristics of ERP market tiers.

	Tier I ERP Products	Tier II ERP Products	Tier III ERP Products
1	Annual revenue more than $250 million	Annual revenue between $25 - $250 million	Annual revenue less than $25 million
2	High complexity	Medium Complexity	Limited functionality
3	Highest cost of ownership	Medium cost of ownership	Lowest cost of ownership
4	Can be used in many industry	Vertical industry focus	Vertical industry focus
5	Industry Specific solution	One product for all industry	One product for all industry
6	Largest ERP companies	Medium ERP companies	Small ERP companies

7	Inter national Operations	International operations	
8	Multilanguage, multi currency capabilities	Can have multi language, multicurrency capabilities	

6b. Write a note on ERP vendors of the following:
  I)SAP AG   II) ORACLE corporation
  SAP AG : Started in 1972.
         In 2011 total revenue of $18.54 billion in the financial year.SAP AG is world leader in Enterprise software and software related services.
          It is a built Internet Transaction Server(ITS), currently limited to running on windows NT 4.0 servers. It is used to adapt the presentation layer for use within a web browser.SAP is integrating with EFT capabilities. To introduce fourth tier to its architecture to handle interaction with the web.SAP joint venture and pan desic LLc ,bundles R/3 with other storefront –related software were used for the consumer-to business web e-commerce and accounting solution.
         Business Suite
         SAP Analytics
         SAP ERP
         SAP Business One
         SAP Business By Design
         SAP Business All-in-One Solutions

 II) ORACLE corporation
 Oracle Application has 45 plus software modules they are:
 .Oracle Financials: companies work globally and provide accurate decisions
 .Oracle Human resources: Well managed human resources, motivation most capable work force.
 .Oracle projects: Improve operational efficiency by providing integrated project environment.
 .Oracle manufacturing: Industry leading mixed-mode manufacturing solutions that provide company to achieve market-leadership by becoming more customer-responsive and efficient
 .Oracle supply chain: Provides supply chain management.
 .Oracle Front office: Provides customer –centric approach allowing to understand customer relationship, their value and profitability.

7a. Explain the role of business analytics in ERP.   **(10Marks)**

     Implementation of Successful BA front-end to an ERP solution
 1.Clarify business objectives and obtain executive sponsorship
 2.Begin with a reasonable scope and ensure adequate resource
 3.Choose a vendor with industry expertise in both DW and ERP

4.Choose a DW platform that deliveries high availability
5.Select tools that speed implementation and reduce cost
6.Increase the velocity of information
7.Plan for Performance and growth
8.Close the loop for continual improvements

7b.Explain Enterprise Application Integration[EAI] process with EAI implementation pitfalls. **(10Marks)**
Enterprise Application integration (EAI) is a process of linking these applications and others in order to realize financial and operational competitive advantages. In an era of economic globalization and e-business, Enterprises are struggling with the ERP system in achieving objectives like a maintain a competitive edge , providing access to the global trading environment etc.

EAI implementation pitfalls:
1. Constant change
2. Lack of EAI experts
3. Competing Standards
4. Thinking of EAI as a tool as opposed to a system
5. Discarding details along the way
6. Emerging requirements.
7. Unclear accountability

8a. Explain the impact of SAAS and cloud ERP on the market with mobile ERP solutions. (10Marks)

Ans: SAAS(software-as-a-service) for ERP has gained momentum in SMBs and specific industry domains. ERP SAAS suites for large enterprises remains immature. Technologies like VPN,SSL and SET have made transactions over internet.

VPN(virtual private network) connects the geographically dispersed facilities of an enterprise over a public network. i.e. internet. SSL(Secure Socket Layer) protocol is used for on the wed to protect credit card members and other sensitive data transmitted between a users web browser and an internet web server through htttp protocol. SET(Secure Electronic Transaction) protocol addresses an encrypted channel between customer and bank.

customer

mobile employee   marketing agent

customer
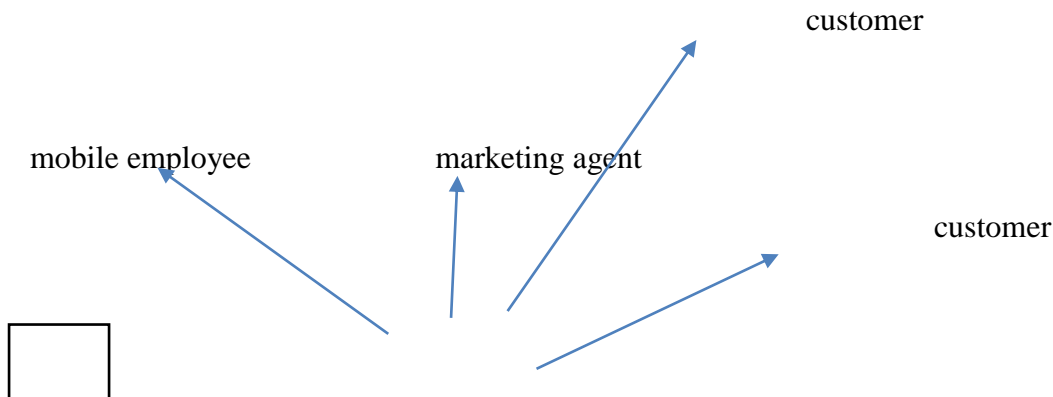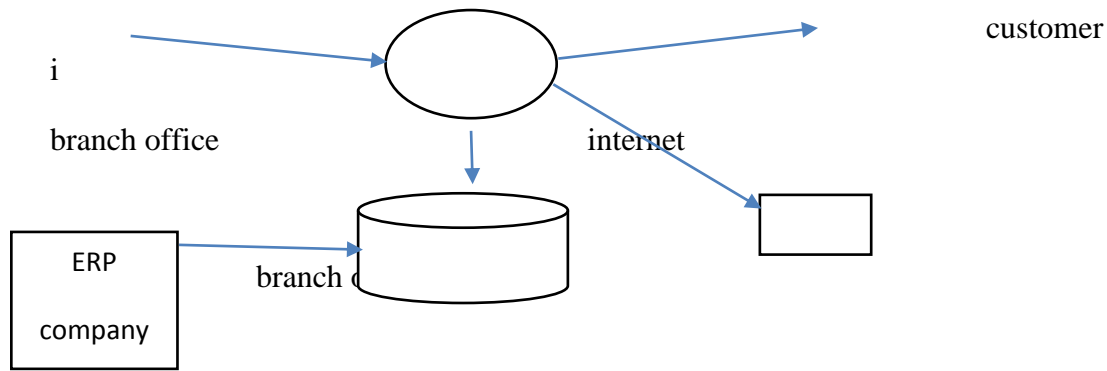
overview of business is conducted over the internet

Mobile ERP is an Enterprise Resource Planning System build from the ground up for the mobile user. The main way of using the system is through a mobile device such as a smart phone or tablet instead of location fixed computer. Just as the ERP the Mobile ERP is a suite of integrated applications—that a company can use to store and manage data from every stage of business.

One of the advantages of a Mobile ERP system is that it enhances mobility in a company and thereby increases efficiency and decreases other costs such as transportation.

8b.How is ERP more efficient with the connection of internet and www ?   (10Marks)

Framework of integrating the internet and ERP systems are:

1. Integration of information systems.

   Replacing paper-based systems with shared resource computer systems. .capturing data once. storing a single copy of data in a manner which can be accessed by all Authorized users. allowing the selection and manipulation of data in a variety of ways to suit the need of different group of users.

2. ERP Systems: It is a Software package that enables the sharing of business information stored on a common database among targeted business units in the entire organization.
3. Internet use in organization: Internet can be defined as a use of electronic networks for communication between information technology systems of organization or as a network of networks .ex :e-mail, www, file transfer, remote log-in.