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Internal Assessment Test 1 – Sept. 2017

Sub:	Enterprise Resource Planning					Sub Code:	16MCA352	Branch:	MCA
Date:	21.09.2017	Duration:	90 min's	Max Marks:	50	Sem / Sec:	III		OBE

Answer any FIVE FULL Questions

		MARKS	CO	RBT
1 (a)	What is ERP? Explain in detail any two benefits of ERP?	[06]	CO1	L1
(b)	What are the characteristics of data in Data Warehouse?	[04]	CO1	L1
2 (a)	Explain in detail different phases of BPR	[10]	CO1	L1
3 (a)	Explain data warehousing Architecture	[08]	CO1	L1,L2
(b)	What is data mining?	[02]	CO1	L1
4 (a)	List and Explain different styles of OLAP	[05]	CO1	L1
(b)	How does SCM helps to share data and gut instinct with business partners? What are advantages of SCM?	[05]	CO1	L1
5 (a)	Explain Purchasing sub module of Material management	[05]	CO1	L1
(b)	Explain Material and capacity planning sub module of Manufacturing management	[05]	CO1	L1
6 (a)	Explain all the sub modules of Financial Module	[10]	CO1	L1
7 (a)	Discuss all the functions of Quality management?	[06]	CO2	L2
(b)	How HR module help HR managers and organization	[04]	CO1	L1
4 (a)	List all sub modules of sales and distribution management and explain purchase order and warehouse management?	[10]	CO1	L1

Subject : Enterprise Resource Planning

Date : 21.09.2017 **Duration : 90 mins** **Max Marks : 50** **Sem : III**

1(a) **What is ERP? Explain in detail any two benefits of ERP?** [6]

ERP a set of tools and processes that integrates departments and functions across a company into one computer system.

ERP integrates all business functions into a single, integrated software program that runs on a single database so that the various departments can more easily share information and communicate with each other

Benefits:

INFORMATION INTEGRATION

- Promotion of integration has lot of advantages in ERP.
- ERP systems are integrated because they have the ability to automatically update data between related business functions and components.
- Information updating happens instantaneously.
- It leads to better decision making and routine problems.
- People involved in a project are connected to each other.
- It has tremendous potential for improving productivity.

REDUCTION OF LEAD-TIME

- The elapsed time between placing an order receiving it is known as the lead-time..
- It plays a significant role in purchasing and inventory control.
- **Squeaky Wheel Principle**: - Buyers who expect the shortest lead-times complain the loudest when deliveries are late and thereby receive the most attention from suppliers. So the company should find out the minimum lead-time and should attempt to correct supplier's delivery delays instead of automatically increasing existing lead-times.
- In order to reduce the lead-time, the organization should have an efficient inventory management system, which is integrated with the purchasing, production planning and production departments.
- In this era, the knowledge of the exact lead-time for each and every item is of paramount importance for uninterrupted production.
- For a company dealing with hundreds and thousands of raw materials and components, keeping track manually of the lead-time for each and every individual item is practically an impossible task.
- The ERP systems help in automating this task and thus, make the, inventory management more efficient and effective. Also since the ERP system is integrated and the materials management module is integrated with other modules like sales, marketing, purchasing, manufacturing and production planning, the demand for a particular item can be known as early as an order is received.

(b) What are the characteristics of data in Data Warehouse? [4]

Data in used by a data warehouse may be characterized as follows:

- **Subject-oriented**

The data in the data warehouse is organized so that all the data elements relating to the same real-world event or object are linked together.

- **Integrated**

The data warehouse contains data from most or all of an organization's operational systems and these data

are made consistent.

- **Non-volatile**

Data in the data warehouse are never over-written or deleted – once committed, the data are static, read-only, and retained for future reporting.

- **Time-variant**

The top-down design methodology generates highly consistent dimensional views of data across data marts since all data marts are loaded from the centralized repository. The up-front cost for implementing a data warehouse using the top-down methodology is significant, and the duration of time from the start of project to the point that end users experience initial benefits can be substantial.

2. Explain in detail different phases of BPR [10]

PHASE 1 : BEGIN ORGANIZATIONAL CHANGE

The main activates in this step are:

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

The first step is to take a long hard look how the organization operates. The Purpose of analysis should be to determine whether dramatic changes are possible or marginal changes are needed, which involves lesser risk.

Next step is to look for harmful operating procedures if, any within the organization.

The future vision of how the business must operate will serve as a clear and concise guide with measurable goals for employees to focus on.

Because an organization BPR can potentially require significant changes throughout an organization, it must begin with a communication campaign to educate all those who will be impacted by this change.

PHASE 2 : BUILD THE REENGINEERING ORGANZATION

Major activities of the phase are,

- Establish a BPR organization structure
- Establish the roles for performing BPR
- Choose the personnel who will reengineer

One of the most important members of reengineering effort is the executive leader.

He must be a high level executive who has necessary authority to make people listen and motivational power to make them follow.

Without the commitment of substantial time and effort from top management, no BPR project can overcome the internal forces and will never reach implementation. The executive leader usually appoints Process owners.

PHASE 3: IDENTIFY BPR OPPORTUNITIES

This phase consists of following activities

- Identify core/ high level processes
- Recognize potential change enabler
- 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

Picking a process which has high success potential and which can show success fast is very important to build the necessary momentum and enthusiasm at all level of organization.

PHASE 4: UNDERSTANDING THE EXISTING PROCESS
The main activities of the phase are

- Understanding why current steps are performed
- Model the current process
- Understand how technology is currently used
- Understand how information is currently used
- Understand current organization structure
- Compare current process with the new objectives

Modeling current process helps to better understand the existing process, but also helps with planning migration from the old to the new process and executing the physical transformation of personnel, organizational structures, information requirements, and how technology is used. Information that should be included in the models are process inputs (such as task times, data requirements, resources, demand etc) and process outputs (such as data output cost, throughput, cycle time, bottleneck etc)

PHASE 5: RE-ENGINEER THE PROCESS
The major activities in this phase are

- Ensure the diversity of 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

The reengineering team should consist of designers and implementers and include both insiders and outsiders of existing process. Have people who will be future process owners or those responsible for future process. Brainstorming sessions are most successful when the following BPR principles are considered.

PHASE 6: BLUEPRINT TIIE NEW BUSINESS SYSTEM
The activities of the phase are

- 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

Blueprints are detailed plans required to build something in accordance with the designer's intentions. Blueprinting involves modeling the new process flow and the information required to support it.
Just as we modeled the "as-is" process and information requirements, we need to create "to be" models to illustrate how the work flow be different.

PHASE 7: PERFORM THE TRANSFORMATION
The activities of the phase are

- 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 structure
- Assess current skills and capabilities of workforce
- Map new tasks and skills requirements to staff
- Re-allocate, workforce
- Develop a training curriculum
- Educate the 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 new technologies
- Incorporate process improvement mechanism

3(a) Explain data warehousing Architecture [8]

The major components of data warehouse architecture are:

- Summarized data (lightly summarized and highly summarized)
- Current detail
- Operational systems of record
- Integration and transformation Programs
- Data warehouse Architecture or Metadata
- Archives

Summarized data

Summarized data is classified into two :

Lightly summarized and highly summarized.

- Lightly summarized data are the hallmark of a data warehouse. All enterprise elements (departments) do not have the same info requirement. So effective data warehouse design provide for every enterprise element may have access to both detail and summarized data but there will be much less then total storing current detail
- Highly summarized data are primary for enterprise executives. Highly summarized can either come from the lightly summarized data used by the enterprise element or from current details

Current detail

The heart of a data warehouse is its current detail, where the bulk of data resides. Current detail comes directly from operational systems and may be stored as raw data or as aggregations of raw data.

Operational systems of record

A system of record is a source of the data that feed the data warehouse. Data in data warehouse differ from operational system. Data in that they can only be read not modified. Thus it is necessary that a data warehouse be populated with higher quality data available that is data that are most timely complete, accurate and have the best structured conformance to the data warehouse.

Integration/Transformation programs

Even the highest quality operation data can't usually be copied as it is into a data warehouse. Raw operational data are virtually unintelligible to most users. As operational data item passes from their system to record into data warehouse integration and transformation program convert them from application specification data into enterprise data. This integration and transformation program perform functions such as

1. Reformatting, Recalculating or modifying key structures
2. Adding time element
3. Identifying default value
4. Supplying logic to choose between multiple data sources
5. Summarizing and merging data from various sources.

Archives

Data warehouse architecture contains old data of significant continuing interest and value to the enterprise there is usually massive amount of data stored in the data warehouse archives with a lower incidence of access. Archives data are most often used for forecasting and trend analysis. An archive includes not only

old data but they also include the metadata that describes the characteristics of old data.

Data warehouse architecture or metadata

Metadata is the data about data and is used by data warehouse developers to manage and control data warehouse creation and maintenance. To a data warehouse user, metadata is like a "card catalog" of the subjects available.

(b) **What is data mining?** [2]

Data mining has been defined as "the nontrivial extraction of implicit previously unknown, and potentially useful information from data" and "the science of extracting useful information from large data sets or databases"

4(a) List and Explain different styles of OLAP [5]

The four major alternatives for implementing OLAP applications are:

1. **Multi-dimensional OLAP**

   Multi-dimensional OLAP (MOLAP) is based on a multi-dimensional data base architecture. MOLAP is suitable for applications requiring only predefined analysis on multiple dimensions.

2. **Hybrid OLAP**

   Hybrid OLAP products primarily integrate specialized multidimensional data storage with relational database management technology. HOLAP best suited to applications that require heavy analysis, must provide predictable response time store source intensive queries, will have a small number of concurrent users.

3. **Desktop OLAP**

   The desktop style of OLAP 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.

   The desktop OLAP is suitable for an enterprise that wants to provide predefined analysis capabilities to business users without incurring the higher purchase and maintenance cost of more functional products.

4. **Relational OLAP**

   Relational OLAP (ROLAP) is the fastest growing area of OLAP technology, with new vendors entering the market at an accelerating pace. The ROLAP is suitable for situations where users require unrestricted analysis of a large volume of data.

(b) How does SCM helps to share data and gut instinct with business partners? What are advantages of SCM? [5]

- An SCM system ensures more visibility throughout the supply chain fewer surprises and less need to stock back up raw materials or finished goods.
- With better synchronization across the entire supply chain, the business partners achieve the following major benefits:
  1. Lower inventories and therefore, lower financing costs
  2. Shorter receivables cycles
  3. Optimal use of resources, costly work forces and transportation
  4. Faster response to market changes
  5. Greater satisfaction and loyalty among customers
  6. Greater profitability
- The most successful companies maximize those benefits by selecting SCM solutions on the basis how well they improved critical business processes.

Supply chain management enables:

- Supply chain planning and collaboration
- Supply chain execution

- Supply chain visibility design and analytics
- Business benefits

Supply chain planning and collaboration

Supply chain planning functionality enables you to maximize return on assets and ensures a profitable match of supply and demand'

Supply chain execution

SCM enables you to carry out supply chain planning and generate high efficiency at the lowest possible cost.

Supply chain visibility design and analytics

SCM gives you network-wide visibility across your extended supply chain to perform strategic as well as day-to- day planning.

Business benefits

SCM can help you transform a traditional linear supply chain into an adaptive network with the following benefits:

- Faster response to changes in supply and demand
- Increased customer satisfaction
- Compliance with regulatory requirements
- Improved cash flow
- Higher margins
- Greater synchronization with business priorities

5(a) Explain Purchasing sub module of Material management [5]

Purchasing is a very important component of the materials management module. . It supports all phases of materials management: materials planning and control, purchasing, goods' receiving, inventory management, and invoice verification. Purchasing communicates with other modules in the system to ensure a constant flow of information. The purchasing subsystem manages the activities from procurement to payment by increasing the visibility of the procurement lifecycle and supporting a wide range of activities:

- Perform requisitioning, purchase order management, and invoice verification
- Manage catalog content
- Enable employee self-service procurement of material and services
- Integrate all business partners-from designers, to manufacturers, to customers
- Collaborate with suppliers on product development through payment management

For example, it works side by side with following modules:

Cost accounting system

Orders for materials and services consumed directly illustrate the interface to the cost accounting system. This is because they can be assigned to a cost centre directly.

Financial accounting

Purchasing and accounting both maintain information on vendors. Information on each vendors stored in a vendor master record, which contains both accounting and purchasing information

The vendor master record represents the vendor account in financial accounting. Through purchase order account assignment, purchasing can also specify which Ga, accounts are to be charged in the financial accounting system.

Sales and distribution

Within the framework of Material Requirements Planning (MRP), customer requirements from sales can be passed onto purchasing. In addition, when creating a requisition you can assign it to a sales order.

Purchasing system performs tasks like procurement of materials and services, determination of possible sources of supply for a requirement identified by the materials planning and control system, or arising directly within a user department, monitoring of deliveries and payments to

vendors and so on.

(b) Explain Material and capacity planning sub module of Manufacturing management [5]

Material and Capacity Planning

The planning systems of ERP packages are designed to provide the responsiveness your company needs to meet these customer requirements. With these systems, planners can simulate alternative plans; gaining the information they need to determine which parts and assemblies to make, which co buy and when to manufacture or purchase. Most packages have features to generate recommendations for purchases and production and where necessary, recommend changes to current plans to prevent under or over-utilization of work centres.

If requirements change often, exception based planning features can run continuously, providing virtual time visibility of the changing plans, using item time fences to avoid erratic production plans. Material plans can be developed from a wide variety of sources that include the master schedule, sales forecasts, and dependent and independent demand. An extensive selection of order modifiers provides even greater control and flexibility

ERP packages give your company full control with flexible scheduling and sophisticated shop floor functionality. They also offer extensive freedom for defining production processes in the most appropriate way

Most of these systems are flexible enough to enable your company to establish order-processing priorities that reflect business priorities. The Electronic Planning Board provides a graphical production management tool that delivers immediate visibility of changes in capacity utilization. The planning board shows all scheduled production, current production status, utilization, and materials and capacity availability.

6 Explain sub modules of Financial Module [10]

1) Financial Accounting

The financial accounting module of an ERP system gives you the ability to centrally track financial accounting data within an international, framework of multiple companies, languages, currencies, and charts of accounts

i) General Ledger

The general ledger supports all the functions needed in a financial accounting system. The GL provides document parking, posting, reporting, and an integrated financial calendar for automating periodic activities. The system also provides summary information from other components at a user-defined level of detail. By creating combinations of entered data, you generate data summaries that can be used in planning, allocation, distribution and reporting. The GL will usually have features that allow you to take advantage of more functions in general ledger and in cost centre accounting.

2) Controlling

The controlling system gathers the functions required for effective internal cost accounting. It offers a versatile information system with standard reports and analysis paths for the most common questions. In addition there are features for creating custom reports to supplement standard reports.

i) Overhead Cost Controlling

The overhead cost controlling subsystem focus on monitoring and allocation of the overheads.

ii) Cost Centre Accounting

Cost centre accounting analysis where overhead occurs within the organization. The system offers a wide variety of methods for allocating posted amounts and quantities.

3) Investment Management

Investment management provides tool enabling you to plan and manage your capital spending projects starting at their earliest stage.

4) Treasury Module

The treasury component provides you with a basis for effective liquidity portfolio, and risk management.

i) Cash Management

The cash management subsystem allows you to analyse financial transactions for a given period. The cash management component ensures that all information relevant to liquidity is available to you for analysis purposes, creating a basis for the necessary cash management decision

ii) Treasury Management

This component offers functions for managing financial deals and positions, from trading through to transferring data to financial accounting It also supports flexible reporting and evaluation structures for analysing financial deals, positions and portfolios.

5) Enterprise Controlling

Enterprise Controlling comprises of those functions that will optimize shareholder value while, meeting internal objectives for growth and investment. This module usually includes executive information system, business planning and budgeting, consolidation, and profit centre accounting.

i) Executive Information System

Executive Information System provides an overview of the critical information necessary to manage your organization. Drill-down reporting and the report portfolio are available to evaluate and present the data. The drill-down reports can also be made available in the graphical report portfolio for less experienced users.

ii) Business Planning and Budgeting

Business Planning and budgeting support the management teams of business units and groups in the calculation of business targets such as return on investment. This module also supports central investment planning, budget release and tracking. This module automatically transfers data about investment requirements from transaction applications and provides extensive analysis functions for budget monitoring.

7(a) Discuss all the functions of Quality management? [5]

The quality management modules fulfill the following functions:

Quality planning (management of the basics data for quality planning and inspection planning, material specifications, inspection planning)

Quality inspection (trigger inspections, inspection processing with inspection plan selection and sample calculation, print shop papers for sampling and inspection, record results and defects, make the usage decision, and trigger follow up actions)

Quality Control (dynamic sample determination on the basis of the quality level history, application of statistical process control techniques using quality control charts, quality scores for inspection lots, quality notification for processing internal or external problems and initiating corrective action to correct the problems, inspection lot processing and problem processing, quality management information system for inspections and inspection results along with quality notifications.)

(b) How HR module help HR managers and organization [5]

The HRM module helps the organization and HR mangers to :

- Automate employee administration, time management, payroll, and legal reporting processes
- Consolidate all workforce-related core processes and data onto a single platform
- Depict and analyze your organizational and reporting structures
- Create and manage tailor-made benefits packages
- Record, track, monitor, and evaluate your employees working times and activities
- Support compliance with changing global and local HR regulations
- Understand, evaluate and measures your workforces contributions to the bottom line
- Attract and hire the right people and make new hires productive quickly

- Identify and grow future leaders
- Align team and individual goals with corporate goals and strategies
- Maximize the impact of training
- Develop and deploy talent more rapidly and flexibility than ever before
- Pinpoint where your talent lies and train and cultivate your workforce.
- Align employee goals with your overall business objectives
- Improve productivity by automating paper-based HR processes
- Enable employees to manage important life and work events on their own
- Bring your distrusted workforce together in an employee interaction center
- Increase employee satisfaction with personalized services and accurate information
- Provide managers with a n intuitive portal to accomplish their key tasks

8 List all sub modules of sales and distribution management and explain purchase order and warehouse management? [10]

1. Master Data management
2. Order management
3. Warehouse management
4. Shipping
5. Billing
6. Pricing
7. Sales support
8. Transportation
9. Foreign Trade

Purchase Order Management

Purchase Order Management is increasingly essential in today's ever more competitive business environment because it enables a company to make the correct purchase decisions about quality and price, where quality refers to supply lead time as well as to the (to be purchased) product itself. Purchase order management includes online requisitioning, centralized contract management, just-in-time schedules, and vendor management. Offering access to an approved supplier list, purchase order management enables purchase- quotation to be sent to multiple suppliers. The purchase contract information is made available to the people in the purchasing department. This information will help in supplier selection and provide insight about which suppliers can supply items with the right specifications in the shortest period of time.

Warehouse Management

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 four-wall warehouses.

Components of a good warehouse management application include the following:

- Inventory planning
- Inventory handling
- Intelligent location assignment
- Inventory reporting
- Inventory analysis
- Lot control
- Distribution data collection