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Honey G
Vu Askari Team
www.vuaskari.com

MGT613 Subjective Solved By Honey G
www.vuaskari.com

FINALTERM EXAMINATION
Fall 2008
Solved By Honey G<abdulhaiee2004@gmail.com>

Question No: 43 (Marks: 3)
Explain the importance of employee empowerment in TQM.

In most organizations, the employees are the most under utilized resources but with the advent of TQM the organizational structure has changed dramatically. Most organizations no longer have the one way or pyramidal hierarchical structure but have a more flattened structure which allows for multi skilled workforce. In today's corporate environment, managers take the role of coaching and leadership by providing the employees with the necessary resources and conditions they need in order to accomplish their goals.

TQM may empower employees by delegating responsibility for functions that were formerly within management's domain, which may thus serve to institutionalize empowerment on a more or less prominent base. Managers have the sole responsibility to identify and remove the conditions that foster a sense of powerlessness and which lowers self-efficacy belief of employees.

Question No: 44 (Marks: 3)
What would be the annual ordering cost, if annual demand is 300 units where the order size is 250 units and ordering cost is Rs. 10 per order?
Note: Provide answer with complete working. Failure to show working will result deduction of marks.

Annual Ordering Cost = (Annual Demand / Order Size) x Cost per Order
Annual Ordering Cost = (D/Q) x C
Annual Ordering Cost = (300/250) x 10
Annual Ordering Cost = 1.20 x 10 = **12**

Question No: 45 (Marks: 3)
Gantt charts are of various types. Give a brief description about al least two types of Gantt charts.

Henry Laurence Gantt, A.B., M.E. (1861 – 23 November 1919) was an American mechanical and management consultant who is most famous for developing the Gantt chart in the 1910s

The Gantt chart: Still accepted as an important management tool today, it provides a graphic schedule for the planning and controlling of work, and recording progress towards stages of a project. The chart has a modern variation, Program Evaluation and Review Technique (PERT)

Types of Gantt charts:

Load Chart depicts the loading and idle times of a group of machines or a list of departments

Schedule Chart: A type of Gantt chart that shows the orders or jobs in progress and whether they are on schedule or not.

For more detail: http://kewhl.tripod.com/gantt.htm

Question No: 46 (Marks: 5)

"Six sigma" is related to quality improvement" Elaborate this statement.

Statistically speaking a process is said to be in Six Sigma stage if it does not have more than 3 or 4 defects per million. Most of the organizations, measure their quality program in terms of Six Sigma. Conceptually the Six Sigma Program is designed to reduce defects and requires the use of certain tools and techniques.

Six Sigma Programs are always directed towards quality improvement, cost cutting and time saving. Six Sigma Programs are employed in:

- Design
- Production
- Service
- Operation management
- Inventory management

Question No: 47 (Marks: 5)

MRP (Materials Requirement Planning) processing is made up of various components. Explain some of them.

Material requirements planning (MRP): Computer-based information system that translates master schedule requirements for end items into time-phased requirements for subassemblies, components, and raw materials.

Components of Processing MRP:

Inputs of MRP:

MRP has three Inputs:

- **Master Schedule Plan:** One of three primary inputs in MRP; states which end items are to be produced, when these are needed, and in what quantities
- **Bill of Materials:** One of the three primary inputs of MRP; a listing of all of the raw materials, parts, subassemblies, and assemblies needed to produce one unit of a product.

• **Inventor Records:** Includes information on the status of each item by time period, Gross requirements, Scheduled receipts, Amount on hand, Lead times, Lot sizes, And Assembly Time Chart

MRP Outputs:

Planned orders - schedule indicating the amount and timing of future orders.

Order releases - Authorization for the execution of planned orders.

Changes - revisions of due dates or order quantities, or cancellations of orders.

Question No: 48 (Marks: 10)

Implementation of six sigma aims at reducing defects. What could be the various obstacles in implementing Six Sigma?

Obstacles to Implementing Six Sigma (TQM) include the lack of:

1. Company-wide definition of quality.
2. Strategic plan for change.
3. Customer focus.
4. Real employee empowerment.
5. Strong motivation.
6. Time to devote to quality initiatives.
7. Leadership.
8. Poor inter-organizational communication.
9. View of quality as a "quick fix".
10. Emphasis on short-term financial results.
11. Internal political and "turf" wars.

Question No: 49 (Marks: 10)

Double sampling plan is better than the single sampling plan. Elaborate some of the features of double sampling plan and how it takes care of the limitation of single sampling plan.

Double Sampling Plan Characteristics:

- Takes care of limitation of Single Sampling Plan by taking another sample if results of the initial sample are inconclusive.
- If results from second sample also indicate poor quality than the lot is rejected or otherwise decision reached on the basis of both samples.
- A double sampling plan specifies the lot size, the size of the initial sample, accept/reject criteria for the initial sample, the size of the second sample and a single acceptance number.
- With double sampling plan, 2 values are specified for number of defective items, a lower level c1 and an upper level c2. E.g. If we have c1 equal to 2 and c2 to 7, if number of defects is smaller than c1 than sampling is terminated and lot is accepted.
- If defects are greater than c2, than lot is rejected.

- If it's between c1 and c2 then second sample is selected and compared to a third value c3 which can be 8 and if the cumulative defects from 1 and 2 does not exceeds c3, the lot is accepted.

FINALTERM EXAMINATION
Fall 2008
MGT613- Production / Operations Management (Session - 2)
Solved By Honey G <abdulhaiee2004@gmail.com>

Question No: 43 (Marks: 3)
What are the salient features of six sigma quality management?
Six Sigma Management concepts find greater appreciation and application in recent times. The Six Sigma Management characteristics include:
1. Providing strong leadership.
2. Defining performance merits.
3. Selecting projects likely to succeed.
4. Selecting and training appropriate people.

Question No: 44 (Marks: 3)
How would you justify the reduced set up times and delivery lead times in a JIT system?

Reduce or eliminate setup times: aim for single digit setup times (less than 10 minutes) or "one-touch" setup -- this can be done through better planning, process redesign, and product redesign. A good example of the potential for improved setup times can be found in auto racing, where a NASCAR pit crew can change all four tires and put gas in the tank in under 20 seconds. (How long would it take you to change just one tire on your car?) The pit crew's efficiency is the result of a team effort using specialized equipment and a coordinated, well-rehearsed process.

Reduce lead times (production and delivery): production lead times can be reduced by moving work stations closer together, applying group technology and cellular manufacturing concepts, reducing queue length (reducing the number of jobs waiting to be processed at a given machine), and improving the coordination and cooperation between successive processes; delivery lead times can be reduced through close cooperation with suppliers, possibly by inducing suppliers to locate closer to the factory.

Question No: 45 (Marks: 3)
How would you reveal the importance of maintaining good relationship with suppliers in a JIT system?

Just in Time system provides an organization a robust structure by improving the relationship between the organization and the supplier by constituting a strategic alliance network between the organization and the suppliers. At the intra organization level, JIT forms a healthy alliance between the management and the workforce; all this contributes

in elimination of waste.

Question No: 46 (Marks: 5)
Elaborate the term quality at the source and explain the various outcomes of adopting the philosophy of quality at the source.

Quality at the Source: The philosophy of making each worker responsible for the quality of his or her work.

Quality at the source radically decentralizes operations by making every hourly associate and staff member responsible not only for adhering to strict standards of quality and productivity, but also for defining those standards in the first place

Quality at the source is a lean manufacturing principle which defines that quality output is not only measured at the end of the production line but at every step of the productive process and being the responsibility of each individual who contributes to the production or on time delivery of a product or service. In a practical sense it would involve each operator checking his or her own work before the part/component or product is sent to the next step in the process. This practice when first implemented within the workforce will be a challenging change to company culture but will highlight the relevance of the product's or service's conformance to customer requirements and standards, thus also imparting the importance of quality standards and customer satisfaction within the workforce

Question No: 47 (Marks: 5)
What are the various assumptions an operations manager needs to consider for implementing priority rules?

Assumptions to Priority Rules
1. The set of jobs is known, no new jobs arrive after processing begins and no jobs are cancelled.
2. Setup time is deterministic
3. Processing times are deterministic rather than variables.
4. There will be no interruptions in processing such as machine breakdowns, accidents or worker illnesses.

Question No: 48 (Marks: 10)
As an operations manager, you are required to undertake aggregate planning. What are the various assumptions that you would consider while carrying out aggregate planning?

Assumptions for Aggregate Planning
1. The regular output capacity is the same for all periods.
2. Cost (Back Order, Inventory, Subcontracting etc) is a linear function composed of unit cost and number of units. (In reality cost is more of a step function)
3. Plans are feasible (There is sufficient inventory exists to accommodate a plan, subcontractors would provide quality products and outsourcers would be secure)
4. Assumptions for Aggregate Planning
5. All costs associated with a decision option can be represented by a lump sum or by unit

costs that are independent of the quantity involved.
6. Cost figures can be reasonably estimated and are constant over the planning horizon.
7. Inventories are built up and draw down at a uniform rate and output occurs at a uniform rate throughout each period. Backlogs are treated as if they exist for the entire period, even though in reality they tend to build up towards the end of the period

Question No: 49 (Marks: 10)
Periodic inventory system is mostly used by small grocers whereas perpetual inventory system by retail outlets. Suggest what other points of differences can be found between these two systems?

Periodic Inventory System	Perpetual Inventory System
Inventory account and cost of goods sold are non-existent until the physical count at the end of the year.	Account and the balance of costs of goods sold and inventory account exist all the time.
Purchases account is used to record purchases.	No individual purchases account but the purchases are recorded in the Inventory Account.
Purchase Return account is used to record Purchases Returns account.	No individual Purchase Returns account but the purchases return are recorded in the Inventory Account.
Cost of goods sold or cost of sale is computed from the ending inventory figure	Record cost of goods sold/cost of sale – inventory is reduced when there is a sale.
For goods returned by customers there are no inventory entries.	Returns from customers are recorded by reducing the cost of goods sold and adding back into inventory.

FINALTERM EXAMINATION
Fall 2008
MGT613- Production / Operations Management (Session - 3)

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Honey G
Vu Askari Team
www.vuaskari.com
Solved By Honey G <abdulhaiee2004@gmail.com>

Question No: 43 (Marks: 3)
Why do older machines generally exhibit a higher degree of natural variability than do the newer machines?

Old machine generally exhibit a higher degree of natural variability than the newer machine, partly because of worn parts and partly because newer machines may incorporate design improvement that reduce the variability of their output.

For more detail:
http://books.google.com.pk/books?id=HH0vVv6dMb0C&pg=PA477&lpg=PA477&dq=Why+do+older+machines+generally+exhibit+a+higher+degree+of+natural+variability+than+do+the+newer+machines?&source=bl&ots=X6QWUb4M8V&sig=CRzoLJcl-60uOSPXYk9xJh_Gwew&hl=en&ei=8VQbTrzLF87O-QbnvIUc&sa=X&oi=book_result&ct=result&resnum=5&ved=0CCYQ6AEwBA#v=onepage&q=older%20machines%20will%20generally%20exhibit%20a%20higher%20degree%20of%20natural%20variability%20than%20newer%20machines&f=false

Question No: 44 (Marks: 3)
What are the primary reasons for holding inventory?
There are four reasons for holding inventory:

1. **To avoid inventory shortages:** Frequent shortages of inventory may cause customers to look for alternative suppliers. This will reduce sales and profit.
2. **To take advantage of quantity discounts:** Suppliers often offer quantity discounts. However, any cost savings must be balanced against higher storage costs, increased risk of damage and the greater cost of financing higher inventory levels.
3. **To protect against price increases:** Carrying (holding) inventory is one way of hedging against possible price increases. Firms that supply goods against contracted or quoted prices may buy the required inventories and hold them for future use rather than risk a price increase in the future.
4. **To avoid uncertainty associated with market fluctuations:** When supply and/or demand are irregular and/or seasonal, the buying and storing of inventories above a normal level effectively reduces the uncertainty associated with such market fluctuations.

Question No: 45 (Marks: 3)
Why is it important to minimize inventory in a Just-in-Time system?

By taking a JIT approach to inventory and product handling, companies can often cut costs significantly. Inventory costs contribute heavily to the company expenses, especially in manufacturing organizations. By minimizing the amount of inventory you hold, you save space, free up cash resources, and reduce the waste that comes from obsolescence.

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Honey G
Vu Askari Team
www.vuaskari.com

Question No: 46 (Marks: 5)

Mr. Ali is appointed as a quality inspector at ABC Company. He is responsible for quality assurance that requires acceptance sampling. What are the various factors that he would consider for deciding which sampling plan to use?

Mr. Ali should consider the following factors before choosing a sampling plan:

- Cost and time are prime determinants of choosing a plan.
- Primary considerations are number of samples needed and total number of observations required.
- Single sample has only one sample but large sample size.
- Where the cost to obtain a sample is high than cost of analyzing the sample, single sample plan is followed.
- Where inspection costs are higher than costs of obtaining the sample, multiple samples are carried to ensure that a good or bad result can help terminate the sample testing thus ensuring savings in inspection cost.

Question No: 47 (Marks: 5)

What are the various goals, JIT strives to achieve?

The following are the goals which JIT strives to achieve:

- Eliminate disruptions
- Make system flexible by reduce setup and lead times
- Eliminate waste, especially excess inventory
- To improve quality
- To Reduce the production time
- To reduce the cost

Question No: 48 (Marks: 10)

Double sampling plan is better than the single sampling plan. Elaborate some of the features of double sampling plan and how it takes care of the limitation of single sampling plan.

- Takes care of limitation of Single Sampling Plan by taking another sample if results of the initial sample are inconclusive.
- If results from second sample also indicate poor quality than the lot is rejected or otherwise decision reached on the basis of both samples.
- A double sampling plan specifies the lot size, the size of the initial sample, accept/reject criteria for the initial sample, the size of the second sample and a single acceptance number.
- With double sampling plan, 2 values are specified for number of defective items, a lower level c1 and an upper level c2. E.g. If we have c1 equal to 2 and c2 to 7, if number of defects is smaller than c1 than sampling is terminated and lot is accepted.
- If defects are greater than c2, than lot is rejected.

- If it's between c1 and c2 then second sample is selected and compared to a third value c3 which can be 8 and if the cumulative defects from 1 and 2 does not exceeds c3, the lot is accepted.

Question No: 49 (Marks: 10)

How EPQ (Economic Production Quantity) does differ from EOQ (Economic Order Quantity)? What are the various assumptions of EPQ model?

The difference between these two methods is that the EPQ model assumes the company will produce its own quantity or the parts are going to be shipped to the company while they are being produced, therefore the orders are available or received in an incrementally manner while the products are being produced. While the EOQ model assumes the order quantity arrives complete and immediately after ordering, meaning that the parts are produced by another company and are ready to be shipped when the order is placed

Economic Production Quantity Assumptions:

1. Only one item is involved
2. Annual demand is known
3. Usage rate is constant
4. Usage occurs continuously
5. Production rate is constant
6. Lead time does not vary
7. No quantity discounts

FINALTERM EXAMINATION
Fall 2008
MGT613- Production / Operations Management (Session - 4)

Question No: 43 (Marks: 3)

Illustrate the role of inventory as a capacity changing option in aggregate planning.

Role of Inventory as a capacity changing option in Aggregate Planning:

- Inventory as a capacity changing option in Aggregate Planning Applies mainly to production, not service operations
- Inventory holding costs; Shortages may result in lost sales
- Changes in human resources are gradual, not abrupt production changes

OR

In order to satisfy changes in customer demand, the firm must raise or lower inventory levels in anticipation of increased or decreased levels of forecast demand. The firm maintains a level workforce and a steady rate of output when demand is somewhat low. This allows the firm to establish higher inventory levels than are currently needed. As demand increases, the firm is able to continue a steady production rate/steady employment level, while allowing the inventory surplus to absorb the increased demand

For Detail See the Slide No. 6 & 7

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Honey G
Vu Askari Team
www.vuaskari.com
https://docs.google.com/viewer?a=v&q=cache:qfr1sqqV3jIJ:www.cba.nau.edu/facstaff/ozmun-j/Aggregate%2520Planning%2520-%2520Chapter%252013.S03ppt.ppt+role+of+inventory+as+a+capacity+changing+option+in+aggregate+planning&hl=en&pid=bl&srcid=ADGEESiOgZ7U0b-7yuI1S2UrNqFQ9MrwdGqHwgKbNkI33tEfMRZ9kOJjbXIQv0pyoRPCWUh-WZY9aGx6wkpJMp-VUhT9gnxW_GuB7pH5gmVIUVe0z0iWwnU0uK_zRL2e0VCasVR7JIe4&sig=AHIEtbRpVCkkvncwS8THAldKJMW24ccIwA

Question No: 44 (Marks: 3)
Ali takes vitamin tablets at a rate of 2 per day, which are delivered to his home 4 days after an order is placed. At what point should Ali reorder?
Note: Provide answer with complete working. Failure to show working will result in deduction of marks.

Reorder Point = Usage x Lead Time
Reorder Point = 2 x 4 = 8

Question No: 45 (Marks: 3)
There are many problems in the supply chain management. Enlist some of them.
Challenges to an Effective Supply Chain Management
1. Barriers to integration of organizations
2. Getting top management on board
3. Dealing with trade-offs
4. Small businesses
5. Variability and uncertainty
6. Long lead times

Question No: 46 (Marks: 5)
Define aggregate planning. Discuss its role in FMCG department of a departmental store.

Aggregate planning is an operational activity that does an aggregate plan for the production process, in advance of 2 to 18 months, to give an idea to management as to what quantity of materials and other resources are to be procured and when, so that the total cost of operations of the organization is kept to the minimum over that period. Normally in FMCG sector medium and short range aggregate planning is used.

Question No: 47 (Marks: 5)
Project management software is used for scheduling, cost control and budget management, etc. what can be the other uses of project management software?

Project management software is designed to help business teams cost effectively complete a project on time. The software features scheduling, tracking, reporting and calendar functions that are always accessible to the entire work team, regardless of the geographic dispersion of team members. Keeping a project on track throughout its life cycle can help save money by eliminating the chance for a missed deadline.

Communication

Project management software facilitates communication among project team members regardless of their geographical location. At any time, members can log in to the system to communicate with each other.

Management

Team leaders and individual team members can use this software to manage every facet of the project. For example, they can assign tasks to each other, prioritize those tasks, and create personalized "to-do" lists.

Tracking

The tracking feature common to project management software allows project members to track progress, milestones, deadlines and cost. Priorities and resources can be adjusted accordingly throughout the project.

Accountability

Team members are forced to be more accountable for their tasks because their daily progress is tracked by the software and viewable by the group. If one member fails to meet a deadline, another can fill the void.

Transparency

Project management software offers transparency because every action related to the project is recorded in the system. This provides an objective overview of the project from its launch through to completion

Question No: 48 (Marks: 10)

Suppose you are the consultant of an ABC company. The CEO of the company is in favour of implementing total quality management. How would you compare TQM with traditional management philosophy?

TQM offers a way of maintaining positive dynamism in process and ensure the constant enhancement of performance. A TQM organization has very different management style than the traditional management approach.

For Remaining Answer follow this link:

https://docs.google.com/viewer?a=v&q=cache:_llP2f5s7KYJ:www.pacis-net.org/file/1995/45.pdf+How+would+you+compare+TQM+with+traditional+management+philosophy%3F&hl=en&pid=bl&srcid=ADGEEShoy0dpu-AB_7F5dp_Uwr65PWtMZSB8nVpRvIHFLH26GsTE6QECACBsi0QmPK4tuMZgTwIdbMTVXhrsavaaTvwGaU2dQZOjdewMh4sDq0X8t3nTkaM4juGtBeosFJc8NLeV-mCG&sig=AHIEtbT3MwW5F2Dmt_oOHggKs4FEvqQtkA

Question No: 49 (Marks: 10)

What is the role of ABC system in inventory management? How would you differentiate among group a, group B and group C?

ABC Classification System

An important aspect of Inventory Management is that items held in inventory are not of equal importance in terms of rupees invested, profit potential, sales or usage volume.

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Honey G
Vu Askari Team
www.vuaskari.com

ABC Classification System controls inventories by dividing items into 3 groups A, B and C respectively.
1. Group A consists of High Rupee (Monetary) Value, which account for a small portion about
10% of the total inventory usage.
2. Group B consists of Medium Rupee (Monetary) Value, which account for about 20% of the total inventory usage.
3. Group C consists of Low Rupee (Monetary) Value, which account for a large portion about 70% of the total inventory usage.
4. The level of control reflects cost benefit concerns.
5. Group A items are reviewed on a regular basis.
6. Group B items are reviewed at a less frequency than Group A items but more than Group C items.
7. Group C items are not reviewed and order is placed directly.

FINALTERM EXAMINATION
Fall 2009
MGT613- Production / Operations Management (Session - 4)
Solved By Honey G <abdulhaiee2004@gmail.com>

Question No: 39 (Marks: 3)
What are the salient features of six sigma quality management?
Six Sigma Management concepts find greater appreciation and application in recent times. The Six Sigma Management characteristics include:
1. Providing strong leadership.
2. Defining performance merits.
3. Selecting projects likely to succeed.
4. Selecting and training appropriate people.

Question No: 40 (Marks: 3)
How would you illustrate the problems that you may encounter in scheduling the service operations?
Scheduling service systems presents certain problems not generally encountered in manufacturing systems. This is primarily due to:
1. The inability to store services
2. The random nature of customer requests
3. Flight schedules
4. Reservation system
5. Control costumer services
6. Scheduling the workforce
To avoid problems such as long delays, unsatisfied customers, service systems rely on appointment systems and reservation systems.

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Honey G
Vu Askari Team
www.vuaskari.com

Question No: 41 (Marks: 5)
What would happen if customer's expected quality and perceived quality do not match? Explain by giving an example.

Differences between Expected and Perceived Quality

This gap is directly related to everyone's perception of service quality

- Customers expect certain things from certain companies
- When someone goes into a McDonalds to order their favourite meal – a Big Mac, they are expecting exactly what they are accustomed to getting (a quick, no hassle, and tasty big burger with all the works). If it takes 15 minutes to get a Big Mac that doesn't even have the famous special sauce on it, the customer's perceived service of McDonalds is going to plummet.
- If gaps 1 through 4 are closed to a minimum then gap 5 should follow, if there are any gaps left in steps 1 through 4 the perceived customer service quality will be negatively affected
- The way to make sure these gaps are closed is through thorough systems design, precise communication with customers, and a well-trained workforce.

Question No: 42 (Marks: 5)
What is the importance of Material Requirement Planning (MRP)? Why companies should invest in the implementation of MRP system? (3+2)

A material requirement planning is a computer based information system that translates master schedule requirements for end items into time-phased requirements for raw materials, components, subassemblies.

Company should invest to improve the implementation of MRP SYSTEM because it is very important tool for the future planning of material needs. By MRP systems a company can improve its costumer services and reduce its cost. Also companies can control inventories, improved scheduling, and Productive relationships with suppliers.

Question No: 43 (Marks: 5)
Differentiate Big vs. Little Just-In-Time System. Which one of the both answers the most pressing questions that an organization faces? 4+1

1. Big JIT: it has broad focus in, vendor relations, materials and inventory management, technology management, human relations

2. Little JIT: it has narrow focus Internal to organization, Scheduling materials, and Scheduling services of production.

By JIT systems organization can achieve a balanced smooth flow of production, it will flexible their system with reduction in wastes and lead time.

Question No: 44 (Marks: 10)
How would you compare a TV set (a product) and TV repair (a service) in terms of at least five dimensions of quality?

I will compare it with the following dimensions of quality.

1. Performance: as we know the performance of new TV set if very good with high quality but when it is repaired its performance and quality is reduced because of repairing services.

2. Aesthetics: it is the appearance of TV set. As new TV set is looking very nice from every angle but when it is repaired its looking is affected by poor services.

3. Special Features: a TV set has many extra features in it. But when it is repaired most of its features will be disabled due to repairing process. For example some times its sound will be change some times its colours or buttons not working.

4. Conformance - how well product/service conforms to customer's expectations

5. Reliability - consistency of performance

6. Durability - useful life of the product/service

7. Perceived Quality: is the quality which will be accepted after repairing services of TV. While a new TV has its expected quality

8. Serviceability: this is the service after sale. When you buy a new TV set, you will get a warranty for that TV and also some changeable service. But when it is repaired for one time then its warrant as well as guarantee will be finished and there is no service ability for that repaired TV.

Question No: 45 (Marks: 10)

Long waiting lines and long waiting times force customers to balk or renege. What mathematical and non-mathematical ways and techniques management should take in order to avoid such kind of problems?

Some times there are long lines of people in offices for example for interviews, customer's centres, banks etc. it is due to the poor management system and poor.

But there are some mathematical as well as non mathematical methods due to those methods we can control these long waiting lines problems.

Queuing theory:

- This is a Mathematical method use for the analysis of waiting lines.
- Its main goal is to minimize the sum of two costs Customer waiting costs and service capacity costs.

Its main points about waiting lines are as following.

- Waiting lines are non-value added occurrences implications of waiting lines.
- To provide space for waiting it will cost.
- There is a threat of Loss of business due to long waiting lines.
- Because of these problems most of costumer will leave.
- Customers always refuse to wait.
- Overcrowding can disrupt other business operations.
- Long waiting lines reduces in customer satisfaction.

By queuing analysis organizations minimizes these types of threats and can manage their business in a very pleasant way.

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Honey G
Vu Askari Team
www.vuaskari.com

Some of Non Mathematical Approaches are the following which are also used to reduce long waiting lines problems.

- There should be Magazines or newspapers in waiting rooms for people who are waiting because of this they will not become bore.
- Also if there is Radio or a television set so the waiting costumers be wait easily.
- In-flight movies.
- By Filling out forms we can reduce waiting times of people.
- Derive benefits from waiting
- By Placing impulse items near checkout so people will see and analyze it for some time.
- Reduce perceived waiting time
- If there is advertisement of other goods or services in waiting place, people will study that so they can wait easily.

FINALTERM EXAMINATION
Spring 2010
MGT613- Production / Operations Management

Question No: 49 (Marks: 3)
As an operations manager of a firm what significant issues you have to consider while implementing supply chain management?

Element	Typical Issues
Customer	Determining what customers want
Forecasting	Predicting quantity and timing of demand
Design	Incorporating customer wants, mfg., and time
Processing	Controlling quality, scheduling work
Inventory	Meeting demand while managing inventory costs
Purchasing	Evaluating suppliers and supporting operations
Supplier	Monitoring supplier quality, delivery, and relations
Location	Determining location of facilities
Logistic	Deciding how to best move and store materials

Question No: 50 (Marks: 3)
How would you reveal the importance of maintaining good relationship with suppliers in a JIT system?

Just in Time system provides an organization a robust structure by improving the relationship between the organization and the supplier by constituting a strategic alliance network between the organization and the suppliers. At the intra organization level, JIT forms a healthy alliance between the management and the workforce; all this contributes

in elimination of waste.

Question No: 51 (Marks: 5)

As operations manager of a manufacturing firm, how can you judge the effectiveness of inventory management?

A manufacturing organization has one or more of the following functions of inventory in mind when it tries to set up a pragmatic and effective inventory management system.

1. To meet anticipated demand.
2. To smooth production requirements.
3. To decouple operations.
4. To protect against stock-outs.
5. To take advantage of quantity discounts.
6. To permit operations.
7. To help hedge against price increases.
8. To take advantage of order cycles

Question No: 52 (Marks: 5)

What is bullwhip effect? What are its consequences?

Bullwhip effect represents the real life time situation that Inventories are progressively larger moving backward through the supply chain**.**

The bullwhip effect is a phenomenon in supply chains. It occurs when consumer behavior varies, even slightly, from predictions. The result of these variances is that variances occur throughout the supply chain, becoming larger and larger as one move up the supply chain. It is called the bullwhip effect because it resembles the way in which a small flick of a bullwhip causes a larger and larger motion toward the end of the whip. The bullwhip effect is widely regarded as a negative occurrence and the sign of a poorly structured supply chain.

Consequences of Bullwhip Effect:

- Lower Revenue
- Increase of Cost
- Higher Carrying Cost
- Higher Shipping Expenses
- Higher Set Up and changeover Expenses
- Higher labour expenses for overtime
- Excessive Inventory
- Inefficient Production

Logistics: (5 marks)

The goal of logistic work is to manage the completion of project life cycles, supply chains and resultant efficiencies. Often Logistics is termed as the art and science of managing and controlling the flow of goods, energy, information and other resources

like products, services, and people, from the source of production to the marketplace. It also refers to the movement of materials and information within a facility and to incoming and outgoing shipments of goods and materials in a supply chain. Logistics is the time related positioning of resources and is commonly seen as a branch of engineering which creates "people systems" rather than "machine systems. It involves the integration of information, transportation, inventory, warehousing, material handling, and packaging.

Which are the factors effecting low productivity in Pakistan? (5 marks)

The following are the factors which effect low productivity in Pak:

- Illiteracy, general socio-economic backwardness, slow progress in implementing land reforms and inadequate or inefficient finance and marketing services for farm produce.
- Inconsistent government policy: Agricultural subsidies and taxes often changed without notice for short term political ends.
- The average size of land holdings is very small and is subject to fragmentation due to land ceiling acts, and in some cases, family disputes. Such small holdings are often over-manned, resulting in disguised unemployment and low productivity of labor.
- Adoption of modern agricultural practices and use of technology is inadequate, hampered by ignorance of such practices, high costs and impracticality in the case of small land holdings.
- Irrigation facilities are inadequate, as revealed by the fact that only 52.6% of the land was irrigated in 2003–04 which result in farmers still being dependent on rainfall, specifically the Monsoon season. A good monsoon results in a robust growth for the economy as a whole, while a poor monsoon leads to a sluggish growth.

Define reorder level with example and determine reorder quantity? (10 marks)

Reorder Point - When the quantity on hand of an item drops to this amount, the item is reordered.

Determinants of the Reorder Point

1. The rate of demand
2. The lead time
3. Stock out risk (safety stock)
4. Demand and/or lead time variability

Example for Reorder Point:

An apartment complex in Quetta requires water for its home use.
Usage= 2 barrels a day
Lead time= 5 days

ROP= Usage X Lead Time
= 2 barrels a day X 7 = 14 barrels

Priority rules (10 marks)

Priority Rules:

1. FCFS - First Come, First Served: Jobs are processed in the order in which they arrive at a machine or work center.
2. SPT- Shortest Processing Time: Jobs are processed according to processing time at a machine or work center, shortest job first.
3. DD - Due Date: Jobs are processed according to due date, earliest due date first.
4. CR - critical ratio: Jobs are processed according to smallest ratio of time remaining until due date to processing time remaining.
5. S/O - slack per operation: Jobs are processed according to average slack time (time until due date minus remaining time to process). Compute by dividing slack time by dividing slack time by number of remaining operations including the current one.
6. Rush – emergency: Emergency or Preferred Customers first.

Elaborate JIT System?

JIT System

Lean or JIT Systems are effective only if they are designed to produce or deliver the right product or the right services in the right quantities just in time to serve subsequent processes or customers.

JIT/Lean Production Features:

- By eliminating waste (muda), quality is improved, production time is reduced and cost is reduced.
- "Pull" production (by means of Kanban).
- While some believe that Lean Manufacturing is a set of problem solving tools.
- In addition, experts in this field believe that philosophy-based Lean Manufacturing strategy is the most effective way to launch and sustain lean activities

Prior knowledge of job flow times is essential to effective planning, control and Management of customer relationships. Explain job flow time and identify various components of job flow time. (1+4 marks)

Job Flow Time: The length of time a job is in the shop at a particular workstation or work center

The flow time of an order (a job) in a system is the difference between the release time of the job into the system and the departure time of the job from the system. In a manufacturing environment a job's flow time, sometimes referred to as its cycle time, consists of the actual processing, queuing, and material handling times. In general, the flow time of a job in a system is a random variable. More specifically, in a manufacturing system flow time randomness is caused by: (i) changes in the product mix that affect the

queuing and material handling times, (ii) the reliability of processing and material handling devices that affect all components of the flow time; and (iii) natural variations in workers' or machines' production rates. Accordingly, the exact value of a job's flow time becomes known only after the job departs from the system, i.e., a job's flow time is not known a priori.

What are the various assumptions that you would consider while carrying out aggregate planning?

Assumptions for Aggregate Planning

1. The regular output capacity is the same for all periods.
2. Cost (Back Order, Inventory, Subcontracting etc) is a linear function composed of unit cost and number of units. (In reality cost is more of a step function)
3. Plans are feasible (There is sufficient inventory exists to accommodate a plan, subcontractors would provide quality products and outsourcers would be secure)
4. Assumptions for Aggregate Planning
5. All costs associated with a decision option can be represented by a lump sum or by unit costs that are independent of the quantity involved.
6. Cost figures can be reasonably estimated and are constant over the planning horizon.
7. Inventories are built up and draw down at a uniform rate and output occurs at a uniform rate throughout each period. Backlogs are treated as if they exist for the entire period, even though in reality they tend to build up towards the end of the period

What is the role of ABC system in inventory management?

ABC Classification System

An important aspect of Inventory Management is that items held in inventory are not of equal importance in terms of rupees invested, profit potential, sales or usage volume.

ABC Classification System controls inventories by dividing items into 3 groups A, B and C respectively.

1. Group A consists of High Rupee (Monetary) Value, which account for a small portion about
10% of the total inventory usage.
2. Group B consists of Medium Rupee (Monetary) Value, which account for about 20% of the total inventory usage.
3. Group C consists of Low Rupee (Monetary) Value, which account for a large portion about 70% of the total inventory usage.
4. The level of control reflects cost benefit concerns.
5. Group A items are reviewed on a regular basis.
6. Group B items are reviewed at a less frequency than Group A items but more than Group C items.
7. Group C items are not reviewed and order is placed directly.

Why the waiting lines are formed? What are its effects on services operations? Give

an example? (5 marks)

Waiting-line situations are also called queuing problems. It is Mathematical approach to the analysis of waiting lines.

1. Goal of queuing analysis is to minimize the sum of two costs Customer waiting costs and Service capacity costs.
2. Waiting lines are non-value added occurrences

In many operations, waiting lines for service are formed, as when customers wait in a checkout lane at a grocery store, machines wait to be repaired in a factory, or airplanes wait to land at an airport. The common characteristic of these apparently diverse examples is that numbers of physical entities (the arrivals) are attempting to receive service from limited facilities (the servers). As a consequence, the arrivals must sometimes wait in line for their turn to be served.

Waiting Line Examples:

1. Orders waiting to be filled
2. Trucks waiting to be loaded or unloaded
3. Job waiting to be processed
4. Equipment waiting to be loaded
5. Machines waiting to be repaired.

What is critical ratio? How to compute it? (3 marks)

CR - critical ratio: Jobs are processed according to smallest ratio of time remaining until due date to processing time remaining.

Critical Ratio is an index number computed by dividing the time remaining until due date by the work time remaining. As opposed to priority rules, critical ratio is dynamic and easily updated. It tends to perform better than FCFS, EDD, SPT, and LPT on the average job lateness (delays) criterion. The critical ratio gives priority to jobs that must be done to keep shipping on schedule. It is used in conjunction with MRP systems and has broad industrial application. The critical ratio is measure of urgency of any order compared to the other orders for the same facility. The ratio is based on when the completed order is required and how much time is required to complete

The formula for Critical Ratio is:

CR = time remaining / works day remaining

Factors to be consider for using the sampling plan (5 marks)

A sampling plan is a detailed outline of which measurements will be taken at what times, on which material, in what manner, and by whom. Sampling plans should be designed in such a way that the resulting data will contain a representative sample of the parameters of interest and allow for all questions, as stated in the goals, to be answered.

Advantages and disadvantages of concurrent engineering (5 marks)

Concurrent Engineering Advantages

- Manufacturing Personnel are able to identify production capabilities and capacities. They have thus the opportunity to inform the design group about the

suitability of certain materials on the flipsides the designer would know the suitability of certain designs in aiding in cost reduction and quality improvement in production/assembly process.

- Early opportunities for design or procurement of critical tooling, some of which might have long lead times. This can result in a major shortening of the product development process, which should be a key competitive advantage.
- Early consideration of the Technical Feasibility of a particular design or a portion of a design. Again this can avoid serious problems during production. The emphasis can be on problem resolution instead of conflict resolution

Concurrent Engineering Disadvantages

- Long standing existing boundaries between design and manufacturing can be difficult to overcome. Simply bringing a group of people together and thinking that they will be able to work together effectively is probably naïve.
- There must be extra communication and flexibility if the process is to work, and these can be difficult to achieve.
- Computer-Aided Design
- Computer-Aided Design (CAD) is product design using computer graphics.
- Increases productivity of designers, 3 to 10 times
- Creates a database for manufacturing information on product specifications
- Provides possibility of engineering and cost analysis on proposed designs

FINALTERM EXAMINATION

1) What would be the annual carrying cost, if the order size is 200units what where Holding cost is RS.2 per unit?

Annual Carrying Cost = Quantity / 2 x Holding Cost
Annual Carrying Cost = Q/2 x H
Annual Carrying Cost = 200 / 2 x 2
Annual Carrying Cost = 100 x 2 = **200**

2) How MRP system is helpful in manufacturing operations?

1. Material Requirements Planning (MRP) is software focusing on production planning and inventory control system used to manage manufacturing processes.
2. An MRP system is intended to simultaneously meet three objectives:
   1. Ensure materials and products are available for production and delivery to customers.
   2. Maintain the lowest possible level of inventory.
   3. Plan manufacturing activities, delivery schedules and purchasing activities.

3) Besides many advantages of PERT list down three

Advantages of PERT

1. Forces managers to organize

2. Provides graphic display of activities
3. Identifies
4. Critical activities
5. Slack activities

4) Designers of the product would adhere to guidelines provides to the. Do you agree with this statement?

Designers of Product/Service should adhere to Guidelines

The design side needs to adhere to certain guidelines which can ensure that the organization is able to achieve its organizational strategy. These guidelines are often form the vary basis of an organizations design strategy and indicates the importance of standardization in the design of a product or service.

1. Produce designs that are consistent with the goals of the company. An economical upscale model automobile design if replaced with a luxurious model can invite a small number of customers and may loose the existing stronger customer base.
2. Give customers the value they expect .Reliability, safety, endurance, aesthetic and quality dimensions are what the customers are looking for.
3. Make health and safety a primary concern .Green Rickshaws seen functioning on the roads these days are a result of taking care of health and safety of the users as well as those who operate them.
4. Consider potential harm to the environment .A new product should be as a primary guideline should be better than the existing one and should aid in the protection of environment. A number of automobile manufacturers are using hybrid models or cars where as it's expected that steam operated cars may be available in 5 years.

5) Comment on the statement use of overtime of slack time is less serve method for charging capacity then hiring and lying of workers.

Hiring/ firing workers: entails certain costs, both tangible and intangible.
Overtime/Slack time: It is much less severe than hiring/ firing and is quicker and easier to implement

Briefly discuss part period model with example? (3)

Part-Period Model represents an attempt to balance set up and holding costs.

The part period term refers to holding part or parts over a number of periods, e.g. if a business holds 20 parts for 3 periods this would be a 20 X 3= 60 parts period.