

EXAMINATION AND EVALUATION DIVISION
DEPARTMENT OF POLYTECHNIC EDUCATION
(MINISTRY OF HIGHER EDUCATION)

COMMERCE DEPARTMENT

FINAL EXAMINATION
DECEMBER 2011 SESSION

P5601: PRODUCTION MANAGEMENT

DATE: 24 APRIL 2012
DURATION: 2 HOURS (11.15AM – 1.15PM)

This paper consists of **SEVENTEEN (17)** pages including the front page.

Section A: Objective (40 questions – answer **ALL**)
Section B: Structure (2 questions – answer **1** question)
Section C: Essay (2 questions – answer **1** question)

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THE CHIEF INVIGILATOR

SECTION A**OBJECTIVES (40 marks)**

Instructions: This section consists of 40 objective questions. Answer **ALL** the questions.

1. All these decisions are categorized in the scope of operation management

EXCEPT

- A. Location for facilities
- B. Financial analysis
- C. Design of product and process
- D. Quality management

2. Productivity increase when:

- A. Input increase while output remain the same
- B. Input decrease while output remain the same
- C. Output decrease while input remain the same
- D. Input and outputs increase proportionately

3. Services often:

- A. Are tangible
- B. Are standardized
- C. Are knowledge based
- D. Are low in customer interaction

4. Which of the following **IS NOT** a part of operation function in a fast food restaurant?
- A. Purchase raw food
 - B. Design facilities layout
 - C. Prepare burger and French fries
 - D. Equipment maintenance
5. Stated one the characteristic of Total Quality Management, **EXCEPT**
- A. Focus
 - B. Performance
 - C. Strategy
 - D. Team Work
6. Forecasting time horizons include:
- i long range
 - ii medium range
 - iii short range
 - iv large range
- A. i
 - B. i and ii
 - C. i, ii and iii
 - D. i, ii, iii and iv

7. Qualitative methods of forecasting include:
- i sales force composite
 - ii jury of executive opinion
 - iii consumer market survey
 - iv exponential smoothing
- A. i
- B. i and ii
- C. i, ii and iii
- D. iii and iv
8. The three major type of forecasts used by business organization are
- A. Departmental, organizational and territorial
- B. Exponential smoothing, Delphi and regression
- C. Strategic, tactical and operational
- D. Economic, technological and demand
9. Average demand for iPods is 800 units per month. The May monthly index is 1.25. What is the seasonally adjusted sales forecast for May?
- A. 640 units
- B. 798.75 units
- C. 800 units
- D. 1,000 units
10. Method of forecasting is done with the assumption that the future is the same as the past
- A. Moving average method
- B. Naïve method
- C. Projection method
- D. Delphi method

11. Capacity decisions should be made on the basis of:
- A. Building sustained competitive advantage
 - B. Good financial returns
 - C. A coordinated plan
 - D. All of the above
12. Effective capacity is:
- A. The capacity a firm expects to achieve, given the current operating constraints
 - B. The percent of design capacity actually achieved
 - C. The percent of capacity actually achieved
 - D. Actual output
13. System capacity is based on:
- A. Process time of the bottleneck
 - B. Throughput time
 - C. Process time of the fastest station
 - D. Throughput time plus waiting time
14. The Break Even Point is:
- A. Adding processes to meet the point of changing product demands
 - B. Improving processes to increase throughput
 - C. The point in dollars or units at which cost equal revenue
 - D. Adding or removing capacity to meet demand

15. Queuing theory is based on the following assumption **EXCEPT**
- A. The arrival time is less than the service time
 - B. First in first out (FIFO) queue discipline
 - C. The arrival occur according to exponential distribution
 - D. The service time follow exponential distribution
16. The type of layout where similar activities are grouped together in department or work centers according to the function they perform is known as a
- A. Process layout
 - B. Product layout
 - C. Fixed-position layout
 - D. Hybrid layout
17. Factors to be considered in determining the location of a plant are
-
- i Man power
 - ii Near to customer
 - iii Raw material
 - iv Government policy
- A. i and ii
 - B. i, ii and iii
 - C. i, ii and iv
 - D. i, ii, iii and iv

18. Which of the statements best describes *office layout*
- A. Group workers, their equipment, and spaces/offices to provide for movement of information
 - B. Addresses the layout requirements of large, bulky projects such as ships and buildings
 - C. Seeks the best personnel and machine utilization in repetitive or continuous production
 - D. Allocates shelf space and responds to customer behavior
19. Which of the following does not support the retail layout objective of maximizing customer exposure to products?
- A. Locate high-draw items around the periphery of the store
 - B. Use prominent locations for high-impulse and high margin items
 - C. Maximize exposure to expensive items
 - D. Use end aisle locations
20. The major problem addressed by the warehouse layout strategy is:
- A. Minimizing difficulties caused by the material flow varying with each product
 - B. Requiring frequent contact close to one another
 - C. Addressing trade off s between space and material handling
 - D. Balancing product flow from one workstation to the next
21. What is the cost for holding inventories?
- A. Storage and handling
 - B. Ordering
 - C. Setup
 - D. Rent

22. A customer order that cannot be filled when promised or demanded but is filled later is known as _____
- A. Stock out
 - B. Backorder
 - C. Setup cost
 - D. Ordering cost
23. _____ protects against uncertainties in demand, lead time and supply.
- A. Cycle inventory
 - B. Safety stock inventory
 - C. Anticipation inventory
 - D. Pipeline inventory
24. A means of translating customer requirements into the appropriate technical requirements for each stage of product or service development and production. This statement refers to _____.
- A. Deming Wheel Approach
 - B. Kaizen Concept
 - C. Quality function deployment
 - D. Benchmarking
25. _____ is the most limited scope and address in the production process.
- A. ISO 9000
 - B. ISO 9001
 - C. ISO 9002
 - D. ISO 9003

26. A bar chart on which the factors are plotted in decreasing order of frequency along the horizontal axis is called _____
- A. Histogram
 - B. Bar chart
 - C. Pareto chart
 - D. Scatter diagram
27. In order to determine whether observed variations are abnormal, we can measure and plot the quality characteristics taken from the sample on a time ordered diagram called _____.
- A. Histogram
 - B. Bar chart
 - C. Pareto chart
 - D. Control chart
28. Total slack for an activity is a function of the performance of activities leading to it. It can be calculated in _____
- A. $ES - LS$
 - B. $LS - ES$
 - C. $EF - LF$
 - D. $EF - ES$

29. The shortest time in which the activity can be completed, if all goes exceptionally well is known as _____.
- A. Most likely time
 - B. Pessimistic time
 - C. Optimistic time
 - D. Time statistics
30. The sequence of activities between a project's start and finish called _____.
- A. Critical path
 - B. Activity slack
 - C. Path
 - D. Earliest finish time
31. Reducing inefficiency and unproductive time in processes to improve continuously the process and the quality of the products or services they produce is a reasonable definition of _____.
- A. Benchmarking
 - B. JIT
 - C. TQM
 - D. Kanban
32. Concerns of suppliers when moving to JIT include:
- A. Erratic schedules
 - B. Unrealistic quality demand
 - C. Changes without adequate lead time
 - D. All of the above

33. Kanban is the Japanese word for _____.
- A. Pull
 - B. Continuous improvement
 - C. Level schedule
 - D. Card
34. The required number of Kanban equal _____.
- A. Demand during lead time / quantity
 - B. Size of container
 - C. Demand during lead time
 - D. Demand during lead time + safety stock / size of container
35. Quality is defined as _____.
- A. How well a product fits pattern of consumer preferences
 - B. The degree of excellence at an acceptable price and the control of variability at an acceptable cost
 - C. Dimension of a product or service that is defined by the customers
 - D. Being impossible to define but you know what it is
36. ISO 14000 is an international standard that addresses _____.
- A. Environmental Labeling
 - B. Governing documentation
 - C. Production process
 - D. Management responsibility

37. Companies used a continuous, systematic procedure that measures a firm's products, services, and processes against those of industry leaders is known as _____.
- A. Continuous improvement
 - B. Employee empowerment
 - C. Benchmarking
 - D. Copycatting
38. All these concepts are integrated in the Taguchi method **EXCEPT**
- A. Employee involvement
 - B. Remove the effects of adverse conditions
 - C. Quality loss function
 - D. Target specifications
39. The seven tools of Total Quality Management are:
- i. Check sheets and scatter diagram
 - ii. Cause and effect diagram
 - iii. Flow charts and histograms
 - iv. Statistical Process Control (SPC)
 - v. Pareto Charts
 - vi. Critical Path Method and Project Evaluation Review Technique
- A. i, ii, iii, iv and v
 - B. i, iii, iv and vi
 - C. ii, iii, iv, v and vi
 - D. i, ii, iv, v and vi

40. The most popular priority rules include _____
- A. FCFS (first come first served)
 - B. EDD (earliest due date)
 - C. SPT (shortest processing time)
 - D. All of the above

SECTION B**STRUCTURE (30 marks)**

Instructions: This section consists of 2 structured questions. Answer **ONE (1)** question only.

QUESTION 1

- (a) A dental clinic at which only one dentist works is open only two days a week. During those two days, the traffic is uniformly busy with patients arriving at the rate of three per hour. The doctor serves patients at the rate of one every 15 minutes.
- i) What is the probability that the clinic is empty (except for the dentist)?
(5 marks)
 - ii) What is the percentage time when the dentist is busy?
(5 marks)
 - iii) What is the average number of patients in the waiting room?
(5 marks)
 - iv) What is the average time a patient spends in the office (waiting plus service)?
(5 marks)
 - v) What is the average time a patient waits for service?
(5 marks)

- (b) Your firm has expertise with a special type of hand-finished furniture. The learning rate is known to be 82%. If the first piece of furniture took 6 hours, use the logarithmic approach to determine the time needed to do the third unit.
- (5 marks)

QUESTION 2

Ford Car Company had launched accessories shop three years ago in Malaysia. Managing inventory has become a problem and low inventory turnover is squeezing profit margins and causing cash-flow problem. One of the top-selling items for this shop is “Cap”. Sales are 18 units per week, and the supplier charges RM 60.00 per unit. The cost of placing an order with the supplier is RM 45.00. Annual holding cost is 25 percent of a “Cap” , and shop operates 52 weeks per year.

- (a) What is the Economic Quantity Order of “Cap”? (7 marks)
- (b) How many times will orders be placed per year? (5 marks)
- (c) What is the total cost per year? (5 marks)
- (d) What is the cycle time for this product? (5 marks)
- (e) Management chooses a 390-unit “Cap” so that new orders could be placed less frequently. What is the annual cost of the current policy of using a 390-unit? (6 marks)
- (f) Based on answer from questions (c) and (e), state your own conclusion. (2 marks)

SECTION C**ESSAY (30 marks)**

Instructions: This section consists of 2 essay questions. Answer **ONE (1)** question only.

QUESTION 1

- (a) Define operations management. Will your definition accommodate both manufacturing and service operations? (5 marks)
- (b) Identify the items that Fredrick W. Taylor believed management should be more responsible for. (5 marks)
- (c) Which discipline should the operations manager be well versed in order to make good decisions? (5 marks)
- (d) Why are services typically more difficult to standardize, automate, and make efficient? (10 marks)
- (e) How do services differ from goods? Identify **FIVE (5)** ways. (5 marks)

QUESTION 2

- (a) Just in time (JIT) aims to reduce waste and improve quality, bringing a whole range of benefits to manufacturing businesses of any size, as well as retailers with complex supply chains. Explain **FIVE (5)** benefits include in JIT.

(15 marks)

- (b) The objectives of benchmarking – learning from top performers and adopting “best practices” are consistent with the drive for continuous improvement common among many leading public and private sector organizations. Explain **FIVE (5)** stages for developing benchmarks.

(15 marks)