

CENTRAL UNIVERSITY

END-OF-SEMESTER II EXAMINATIONS

2018/2019



MANAGEMENT & PUBLIC ADMINISTRATION

CBFW 304

PRODUCTION & OPERATIONS MANAGEMENT (3 CREDITS)

LEVEL 300

SESSION: MORNING, AFTERNOON, EVENING & WEEKEND

DURATION: 2 HOURS 30 MINUTES

STUDENT ID No:

INSTRUCTIONS:

Section A: Answer all questions from this section (1 mark each and compulsory)

Section B: Answer all questions from this section (2 marks each and compulsory)

Section C: Answer only one (1) question from this section (20 marks each)

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THE INVIGILATOR**

SECTION A (60 MARKS)

For each of these questions, select the best of the answer choices given. Write the correct answer in your answer booklet.

1. Operations management is applicable:
 - A. mostly to the service sector.
 - B. to services exclusively.
 - C. mostly to the manufacturing sector.
 - D. to all firms, whether manufacturing or service.

2. Which of the following are the primary functions of all organizations?
 - A. production/operations, marketing, and human resources
 - B. marketing, human resources, and finance/accounting
 - C. sales, quality control, and production/operations
 - D. marketing, production/operations, and finance/accounting

3. Which of the following would NOT be an operations function in a commercial bank?
 - A. auditing
 - B. teller scheduling
 - C. maintenance
 - D. collection

4. The marketing function's main concern is with:
 - A. producing goods or providing services.
 - B. procuring materials, supplies, and equipment.
 - C. building and maintaining a positive image.
 - D. generating the demand for the organization's products or services.

5. Which of the following tasks within an airline company are related to operations?
 - A. crew scheduling
 - B. international monetary exchange
 - C. sales
 - D. advertising

6. Reasons to study operations management include learning about:
 - A. how people organize themselves for productive enterprise.
 - B. how goods and services are produced.
 - C. what operations managers do.
 - D. all of the above.

7. An operations manager is NOT likely to be involved in:
 - A. the design of goods and services to satisfy customers' wants and needs.
 - B. the quality of goods and services to satisfy customers' wants and needs.
 - C. the identification of customers' wants and needs.
 - D. work scheduling to meet the due dates promised to customers.

8. All of the following decisions fall within the scope of operations management EXCEPT for:
- A. creating the company income statement.
 - B. design of goods and services.
 - C. location strategy.
 - D. managing quality.
9. Which of the following is NOT one of the 10 strategic operations management decisions?
- A. layout strategy
 - B. maintenance
 - C. process and capacity design
 - D. mass customization
10. Walter Shewhart is listed among the important people of operations management because of his contributions to:
- A. assembly line production.
 - B. measuring productivity in the service sector.
 - C. just-in-time inventory methods.
 - D. statistical quality control.
11. Who was the person most responsible for popularizing interchangeable parts in manufacturing?
- A. Frederick Winslow Taylor
 - B. Henry Ford
 - C. Eli Whitney
 - D. Whitney Houston
12. Henry Ford is noted for his contributions to:
- A. material requirements planning.
 - B. statistical quality control.
 - C. assembly line operations.
 - D. scientific management.
13. Which of the following is the best example of a pure service?
- A. counseling
 - B. oil change
 - C. heart transplant
 - D. restaurant
14. Which is NOT true regarding differences between goods and services?
- A. Tangible goods are generally produced and consumed simultaneously; services are not.
 - B. Most goods are common to many customers; services are often unique to the final customer.
 - C. Services tend to have a more inconsistent product definition than goods.
 - D. None, i.e., all of the above are true.

15. Which of the following is a similarity between goods and services?
- mass production
 - consistency
 - automation
 - Both have quality standards.
16. Productivity measurement is complicated by:
- the competition's output.
 - the fact that precise units of measure are often unavailable.
 - stable quality.
 - the workforce size.
17. The total of all outputs produced by the transformation process divided by the total of the inputs is:
- utilization.
 - greater in manufacturing than in services.
 - defined only for manufacturing firms.
 - multifactor productivity.
18. Productivity can be improved by:
- increasing inputs while holding outputs steady.
 - decreasing outputs while holding inputs steady.
 - increasing inputs and outputs in the same proportion.
 - decreasing inputs while holding outputs steady.
19. A firm can effectively use its operations function to yield competitive advantage through all of the following EXCEPT:
- customization of the product.
 - setting equipment utilization goals below the industry average.
 - speed of delivery.
 - constant innovation of new products.
20. The ability of an organization to produce goods or services that have some uniqueness in their characteristics is:
- time-based competition.
 - competing on productivity.
 - competing on quality.
 - competing on differentiation.
21. Which of the following is the best example of competing on low-cost leadership?
- A firm produces its product with less raw material waste than its competitors do.
 - A firm offers more reliable products than its competitors do.
 - A firm's products are introduced into the market faster than its competitors' products are.
 - A firm's research and development department generates many ideas for new products.
22. Which of the following is an example of competing on quick response?
- A firm produces its product with less raw material waste than its competitors do.
 - A firm offers more reliable products than its competitors do.
 - A firm's products are introduced into the market faster than its competitors'

- producers.
- D. A firm utilizes its capacity more effectively than its competitors do.
23. Cost minimization is an appropriate strategy in which stage of the product life cycle?
- A. introduction
 - B. growth
 - C. adolescence
 - D. decline
24. Which of the following OM strategy/issues should a firm with a product in the maturity stage of its life cycle be LEAST concerned with at the present time?
- A. increase capacity
 - B. long production runs
 - C. standardization
 - D. cost cutting
25. What is the practice of transferring a firm's activities that have traditionally been internal to external suppliers?
- A. nearshoring
 - B. farshoring
 - C. offshoring
 - D. outsourcing
26. Which of the following is not an advantage of outsourcing?
- A. cost savings
 - B. gaining outside expertise
 - C. improving operations and service
 - D. outsourcing core competencies
27. The forecasting technique that pools the opinions of a group of experts or managers is known as:
- A. the expert judgment model.
 - B. multiple regression.
 - C. jury of executive opinion.
 - D. market survey.
28. Which of the following is not a type of qualitative forecasting?
- A. jury of executive opinion
 - B. sales force composite
 - C. market survey
 - D. moving average
29. Which of the following statements about time-series forecasting is true?
- A. It is always based on the assumption that future demand will be the same as past demand.
 - B. It makes extensive use of the data collected in the qualitative approach.
 - C. It is based on the assumption that the analysis of past demand helps predict future demand.
 - D. Because it accounts for trends, cycles, and seasonal patterns, it is always more powerful than associative forecasting.

30. Time-series data may exhibit which of the following behaviors?
- trend
 - random variations
 - seasonality
 - They may exhibit all of the above.
31. Gradual upward or downward movement of data over time is called:
- seasonality.
 - a cycle.
 - a trend.
 - exponential variation.
32. The fundamental difference between cycles and seasonality is the:
- duration of the repeating patterns.
 - magnitude of the variation.
 - ability to attribute the pattern to a cause.
 - all of the above
33. Which time-series model below assumes that demand in the next period will be equal to the most recent period's demand?
- naïve approach
 - moving average approach
 - weighted moving average approach
 - exponential smoothing approach
34. Which time-series model uses BOTH past forecasts and past demand data to generate a new forecast?
- naïve
 - moving average
 - weighted moving average
 - exponential smoothing
35. Given an actual demand this period of 103, a forecast value for this period of 99, and an alpha of .4, what is the exponential smoothing forecast for next period?
- 94.6
 - 97.4
 - 100.6
 - 101.6
36. A forecast based on the previous forecast plus a percentage of the forecast error is a(n):
- naïve forecast.
 - moving average forecast.
 - weighted moving average forecast.
 - exponential smoothing forecast.
37. The primary purpose of the mean absolute deviation (MAD) in forecasting is to:
- estimate the trend line.
 - eliminate forecast errors.
 - measure forecast accuracy.
 - seasonally adjust the forecast.

38. Given forecast errors of -1, 4, 8, and -3, what is the mean absolute deviation?
- A. 2
 - B. 3
 - C. 4
 - D. 8
39. If Brandon Edward were working to develop a forecast using a moving averages approach, but he noticed a detectable trend in the historical data, he should:
- A. use weights to place more emphasis on recent data.
 - B. use weights to minimize the importance of the trend.
 - C. change to an associative multiple regression approach.
 - D. use a simple moving average.
40. Which of the following represents an opportunity for generating a new product?
- A. demographic change, such as decreasing family size
 - B. changes in professional standards
 - C. economic change, such as rising household incomes
 - D. All of the above are such opportunities.
41. Quality function deployment (QFD):
- A. determines what will satisfy the customer.
 - B. translates customer desires into the target design.
 - C. is used to determine where to deploy quality efforts.
 - D. all of the above
42. A result of concurrent engineering in product design is:
- A. speedier product development.
 - B. lower quality.
 - C. less customer demand.
 - D. higher costs.
43. Which of the following is TRUE regarding computer-aided design?
- A. It is too expensive to use in most manufacturing and design settings.
 - B. It is an obsolete technology.
 - C. It results in longer development cycles for virtually all products.
 - D. It is the use of computers to interactively design products and prepare engineering documentation.
44. Utilization will always be lower than efficiency because:
- A. effective capacity is less than design capacity.
 - B. effective capacity is greater than design capacity.
 - C. effective capacity equals design capacity.
 - D. expected output is less than actual output.
45. Adding a complementary product to what is currently being produced is a demand management strategy used when:
- A. demand exceeds capacity.
 - B. capacity exceeds demand for a product that has stable demand.
 - C. the existing product has seasonal or cyclical demand.
 - D. price increases have failed to bring about demand management.

46. If demand exceeds capacity, an organization can use which of the following to adjust demand to an existing facility?
- A. aggressive marketing
 - B. lower prices
 - C. build a facility of the correct size
 - D. add a complementary product
47. Break-even is the number of units at which
- A. total revenue equals total variable cost
 - B. total revenue equals total fixed cost
 - C. total profit equals total cost
 - D. total revenue equals total cost
48. Which of the following is true about ISO 14000 certification?
- A. It deals with environmental management.
 - B. It offers a good systematic approach to pollution prevention.
 - C. One of its core elements is life-cycle assessment.
 - D. All of the above are true.
49. A successful TQM program incorporates all of the following except
- A. continuous improvement
 - B. employee involvement
 - C. benchmarking
 - D. centralized decision-making authority
50. "Kaizen" is a Japanese term meaning
- A. a foolproof mechanism
 - B. just-in-time (JIT)
 - C. setting standards
 - D. continuous improvement
51. A popular tool for planning and scheduling simple projects, and for initial planning on more complex projects, is the:
- A. activity-on-arrows network
 - B. activity-on-nodes network
 - C. Gantt chart
 - D. critical path method
52. Loss of business, liability, productivity and costs are consequences of ____.
- A. Labor Unions
 - B. Globalization
 - C. Poor Quality
 - D. Robotics
53. Fixing a problem will often cost money; to minimize these costs it is best to find and fix the problem ____.
- A. just before shipping our product to the customer
 - B. immediately after we complete the last operation
 - C. during the design phase
 - D. just before we begin the first production operation

54. A quality circle is ____.
- responsible for quality
 - total quality control
 - an inspection stamp found on meat
 - a voluntary group of employees
55. The quality control improvement tool which distinguishes between the "important few" and the "trivial many" is ____.
- brainstorming.
 - check sheets.
 - Pareto analysis.
 - cause-and-effect diagrams.
56. Which of the following is an element of TQM?
- continual improvement
 - competitive benchmarking
 - team approach
 - all of the above
57. Giving workers responsibility for quality improvements and authority to make changes is known as:
- continuous improvement
 - passing the buck
 - benchmarking
 - employee empowerment
58. The quality control improvement tool that resembles a "fishbone" is ____.
- brainstorming
 - Pareto analysis
 - cause-and-effect diagrams
 - fail-safe methods
59. The process of dismantling and inspecting a competitor's new or revised product for the purpose of gleaning design ideas is called:
- design by imitation
 - product analysis
 - reverse engineering
 - disassembly
60. Ideas for new or improved designs can come from:
- customers
 - competitors
 - research and development departments
 - all of the above

SECTION B (20 MARKS)

Fill in the blanks and write the correct answer in your answer booklet. Answer all question only (2 Marks Each)

1. Competition in the 21st century is no longer between companies; it is between _____
2. _____ is a forecasting technique based upon salespersons' estimates of expected sales.
3. If a barbershop operator noted that Tuesday's business was typically twice as heavy as Wednesday's, and that Friday's business was typically the busiest of the week, business at the barbershop is subject to _____.
4. _____ is the number of units a facility can hold, store, receive, or produce in a period of time.
5. _____ is actual output as a percent of design capacity.
6. _____ is actual output as a percent of effective capacity.
7. Characteristics of an organisation's goods or services that cause it to be perceived as better than the competition is referred to as _____.
8. The Academic Computing Center has five trainers available in its computer labs to provide training sessions to students. Assume that the design capacity of the system is 1900 students per semester and that effective capacity equals 90% of design capacity. If the number of students who actually got their orientation session is 1500, what is the efficiency of the system? _____.
9. John's Kakabo Valves produces cast bronze valves on an assembly line, currently producing 1600 valves per shift. If the production is increased to 2000 valves per shift, labor productivity will increase by _____.
10. A time-series trend equation is $25.3 + 2.1x$. What is your forecast for period 7?
_____.

SECTION C (20 MARKS)

Section B: Answer one (1) question only (20 Marks Each)

1. Hotsew Inc. is a company that produces sports deodorants. On studying its past sales for 2018, the management observed a certain trend as shown in the table below. The management wants to know the possible demand for the first quarter of 2019.

	1	2	3	4	5	6	7	8	9	10	11	12
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sales	51	55	54	57	50	68	66	59	67	69	75	73

Required:

- a. Use the data to Calculate the values of $\sum X$; $\sum Y$; $\sum XY$; $\sum X^2$; $\sum Y^2$ (5 marks)
 - b. Compute the values of "a" and "b" in the Least square regression line $Y = a + bX$ (4marks)
 - c. Determine the trend equation for the forecast. (3 marks)
 - d. Determine the forecasts for the first four months of the next year. (2 marks each)
2. Nenyin Yartel Company Limited produces and sells "Sobolo" in Ghana. The selling price of a bottle of Sobolo is Ghc10, and the Variable cost per bottle of "Sobolo" is 80% of the selling price. The Company's fixed cost is Ghc 6, 000.

Required

- a. Calculate the contribution per bottle of Sobolo (2marks)
- b. Compute the bottles of Sobolo to produce and sell to breakeven(3marks)
- c. Calculate the Total Revenue(Sales Value) at the breakeven point (2marks)
- d. If the company desires to make a profit of Ghc8,000, how many bottles should the company produce and sell?(3marks)
- e. Due to increases in the price level, the company's selling price is increased by 50%, the variable cost per unit still remains at 80% of the selling price and fixed cost rises by 20%. Calculate the new breakeven point in **units** and in **sales value**. (10marks)