

# CENTRAL UNIVERSITY COLLEGE

END OF 2nd SEMESTER EXAMINATIONS: 2014/2015



MANAGEMENT & PUBLIC ADMINISTRATION

CBFW 304

PRODUCTION & OPERATIONS MANAGEMENT (3 CREDITS)

LEVEL 300

SESSION: ALL SESSIONS

DURATION: 2.5 HOURS

STUDENT ID No: .....

## INSTRUCTIONS:

**Section A:** Answer all questions from this section (60 marks and Compulsory)

**Section B:** Answer one (1) question only from this section. (40 Marks)

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### SECTION A (60 MARKS)

Each of the questions has four answer choices. For each of these questions, select the **best** of the answer choices given. Write the right answer in your answer sheet attached to this question paper i.e. A, or B, or C, or D.

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 and service
  
2. Which of the following would **not** be an operations function in a fast-food restaurant?
  - A. advertising and promotion
  - B. designing the layout of the facility
  - C. maintaining equipment
  - D. making hamburgers and fries
  
3. In operations management, the difference between the cost of inputs and the price of output is:
  - A. Process
  - B. Value added
  - C. Input
  - D. Output
  
4. Which of the following statements is **true**?
  - A. Almost all services and almost all goods are a mixture of a service and a tangible product.
  - B. A pure good has no tangible product component.
  - C. A pure service has only a tangible product component.
  - D. There is no such thing as a pure good.
  
5. Which of the following is **not** a benefit of using models in decision making?
  - A. They provide a standardized format for analyzing a problem.
  - B. They serve as a consistent tool for evaluation.
  - C. They are easy to use and less expensive than dealing with the actual situation.
  - D. All of the above are benefits.
  
6. The fact that a few improvements in a few key areas of operations will have more impact than many improvements in many other areas is consistent with the .....
  - A. Irwin phenomenon
  - B. Pareto phenomenon
  - C. Stevenson phenomenon
  - D. Tellier phenomenon
  
7. The five elements in the management process are .....
  - A. plan, direct, update, lead, and supervise
  - B. plan, organize, staff, lead, and control
  - C. organize, plan, control, staff, and manage
  - D. accounting/finance, marketing, operations, and management

23. What is the approximate forecast for May using a four-month moving average?

Nov.	Dec.	Jan.	Feb.	Mar.	April
39	36	40	42	48	46

- A. 38
- B. 42
- C. 43
- D. 44

24. The following are some steps involved in the forecasting process, **except**:

- A. Purpose Determination
- B. Time Horizon
- C. Idea Generation
- D. Selecting a forecasting Technique

25. The forecasting technique in which experts' answer a series of questions (anonymously), receive feedback, and revise estimated is called:

- A. Delphi technique
- B. Decomposition technique
- C. Executive opinion
- D. Trend projection

26. John's House of Pancakes uses a weighted moving average method to forecast pancake sales. It assigns a weight of 50% to the previous month's demand, 30% to demand two months ago, and 20% to demand three months ago. If sales amounted to 1000 pancakes in May, 2200 pancakes in June, and 3000 pancakes in July, what should be the forecast for August?

- A. 2400
- B. 2511
- C. 2067
- D. 3767

27. The goal of value analysis is to reduce costs while maintaining .....

- A. Product quality and functionality
- B. Product quality and serviceability
- C. Patents and resource flexibility
- D. Patents and technological advance

28. The process of dismantling and inspecting a competitor's new or revised product for the purpose of gleaning design ideas is called .....

- A. design by imitation
- B. product analysis
- C. reverse engineering
- D. disassembly

29. The phases of product design include the following, **except**:

- A. Idea Generation
- B. Feasibility Analysis
- C. Product Specification
- D. Procuring Materials

30. In the context of Kano's model, the design characteristic that evokes a thrilling experience from customers is known as:
- A. Excitement characteristics
  - B. Expected characteristics
  - C. Must have characteristics
  - D. Memory characteristics
31. A structured method of integrating the "voice of the customer" into the service and product development process is known as:
- A. Concurrent Quality Engineering
  - B. Quality Function Deployment
  - C. Quality Function Design
  - D. Total Quality Management
32. A diagram of the service process showing activities, flows, fail points, customer waits, and a line of visibility is called:
- A. Service blueprint
  - B. Service chart
  - C. Service delivery
  - D. Service plan
33. Producing but not quite completing a product or service until customer preferences or specifications are known is referred to as:
- A. Concurrent Engineering
  - B. Delayed Differentiation
  - C. Delayed Integration
  - D. Modular Integration

**Use the following information to answer questions 34 and 35**

Addo's company has 10 minibuses. Each bus can carry 15 passengers. Two of the buses have broken down and are in the workshop. The daily average number of people that were transported last week was 110.

34. What is the utilization?
- A. 73%
  - B. 92%
  - C. 120
  - D. 150
35. Determine the effective capacity.
- A. 73%
  - B. 92%
  - C. 120
  - D. 150

36. The staff training center at a Ridge regional hospital provides training sessions in CPR to **all employees**. Assume that the capacity of this training system was designed to be 1500

employees per year. Since the training center was first put in use, the program has become more complex, so that 1250 now represents the most employees that can be trained per year. In the past year, 1050 employees were trained. The efficiency of this system is approximately..... and its utilization is approximately.....

- A. 90.5 percent; 79.2 percent
- B. 84.0 percent; 70.0 percent
- C. 87.5 percent; 950 employees
- D. 950 employees; 87.5 percent

37. If demand exceeds capacity at a new facility, an organization can use which of the following

to move demand to an existing facility?

- A. Aggressive marketing
- B. Lower prices at all facilities
- C. Increase lead times
- D. Under product changes

38. An operation in a sequence of operations whose capacity is lower than that of the other operations is known as .....

- A. Bottleneck operation
- B. Slow operations
- C. Lead operation
- D. Lag operations

39. The extra demand intended to offset uncertainty is a.....

- A. capacity cushion
- B. line balance
- C. margin protect
- D. timing bubble

40. Capacity decisions are generally considered:

- A. Without regard to forecasts
- B. For the short-run
- C. For the intermediate-run
- D. For the long-run

41. Advances in technology .....

- A. have impacted the manufacturing sector only
- B. have had only limited impact on services
- C. have failed to change the level of customer interaction with an organization
- D. have had dramatic impact on customer interaction with services and with products

42. Which of the following phrases best describes *process focus*?

- A. low volume, high variety
- B. finished goods are usually made to a forecast and stored
- C. operators are modestly skilled
- D. high fixed costs, low variable costs

43. Which of the following best describes the type of operation practiced by drug manufacturing firm?
- A. Mass production
  - B. Job shop
  - C. Batch process
  - D. Continuous process
44. The following are the reasons why layout decisions are important except:
- A. They require substantial investments of money and effort
  - B. They involve a long-term commitment, which makes mistakes difficult to overcome
  - C. They are steps in manufacturing that add value to finished products
  - D. They have significant impact on the cost and efficiency of operations
45. For which of the following operations would a fixed-position layout be most appropriate?
- A. Assembling automobiles
  - B. Producing TV sets
  - C. Constructing a highway tunnel or bridge
  - D. Refining of crude oil
46. In designing warehouse layouts, the following below are some of the key factors that need to be taken into consideration.
- I. Frequency of order of items'
  - II. A correlation between items
  - III. The opportunity to influence sales volume
  - IV. The number and width of aisles
- A. I, II, III
  - B. II, III, IV
  - C. I, II, IV
  - D. II, III, IV
47. Emphasis on finding and correcting defects before reaching market is generally called:
- A. Conformance Charting
  - B. Control Charting
  - C. Quality Assurance
  - D. Quality Design
48. The process of identifying other organizations those are best at some facet of your operations, and then modeling your organization after them is known as .....
- A. continuous improvement
  - B. competitive benchmarking
  - C. employee empowerment.
  - D. industrial espionage
49. "Quality Is Free," meaning that the costs of poor quality have been understated, is the work of
- A. W. Edwards Deming
  - B. Joseph M. Juran
  - C. Philip B. Crosby
  - D. Armand Feigenbaum

50. All of the following costs are likely to decrease as a result of better quality, **except**:
- A. customer dissatisfaction costs
  - B. inspection costs
  - C. scrap costs
  - D. maintenance costs
51. ISO 9000 seeks standardization in terms of .....
- A. production procedures
  - B. suppliers' specifications
  - C. procedures to manage quality
  - D. all of the above
52. The "bullwhip" effect
- A. occurs as orders are relayed from retailers to wholesalers
  - B. results in increasing fluctuations at each step of the sequence
  - C. increases the costs associated with inventory in the supply chain
  - D. all of the above
53. Which of the following is **not** a goal of supply chain management?
- A. Lowest possible transportation costs
  - B. Small lot sizes
  - C. Fewer suppliers and long-term relationship
  - D. Delivery often to the place of use
54. Which of the following is **not** a benefit of effective supply chain management?
- A. Lower inventory costs
  - B. Shorter lead times
  - C. Greater customer loyalty
  - D. Larger number of suppliers
55. The two most basic inventory questions answered by the typical inventory model are:
- A. timing and cost of orders
  - B. quantity and cost of orders
  - C. timing and quantity of orders
  - D. order quantity and service level
56. Which of the following would **not** generally be a motive for a firm to hold inventories?
- A. To decouple or separate parts of the production process
  - B. To provide a stock of goods that will provide a selection for customers
  - C. To take advantage of quantity discounts
  - D. To minimize holding costs
57. Which of the following statements about ABC analysis is **false**?
- A. ABC analysis is based on the presumption that controlling the few most important items produces the vast majority of inventory savings.
  - B. In ABC analysis, "A" Items are tightly controlled, have accurate records, and receive regular review by major decision makers.
  - C. In ABC analysis, "C" Items have minimal records, periodic review, and simple controls.
  - D. ABC analysis is based on the presumption that all items must be tightly controlled to produce important cost savings.

58. All the following are characteristics of a project, **except** .....

- A. Temporary
- B. Definite beginning and end
- C. Interrelated activities
- D. Repeats itself every month

59. The early stage of a project is described as .....

- A. High cost and high demand for resources
- B. A high demand for change
- C. A high demand for project team time
- D. Low costs and low demand for resources

60. If the output rate is more than the optimal level, increasing output rate results in increasing

average unit costs. This principle is referred to as .....

- A. Economies of scale.
- B. Diseconomies of scale.
- C. Law of diminishing returns.
- D. Optimality.

61. The early stage of a project is described as .....

### SECTION B (40 MARKS)

Answer one (1) question only from this section

1a. Car sales at Nyamebest Auto are shown below. Develop a 3-week weighted moving average forecast from weeks 4 to week 8. (20 Marks)

Week	Auto Sales
1	8
2	10
3	9
4	11
5	10
6	13
7	14
8	-

Weights Applied	Period
0.5	Last week
0.3	Two weeks ago
0.2	Three weeks ago
1	Total

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1b. The weekly output of a production process is shown below, together with data for labor and material inputs. The standard inventory value of the output is \$125 per unit. Overhead is charged weekly at the rate of \$1500 plus .5 times direct labor cost. Assume a 40-hour week and an hourly wage of \$16. Material cost is \$10 per running foot. Determine the productivity for each week. (16 Marks) What is the average multi-factor productivity for this process? (4 Marks)

Week	Output	# Workers	Material (ft)
1	412	6	2840
2	364	5	2550
3	392	5	2720
4	408	6	2790

2. A project's details are given in the table below. Times are given in weeks.
- Calculate the expected time for each activity to the nearest integer. (10 Marks)
  - Calculate the variance for each activity. (20 Marks)
  - Create a Gantt chart for the project using the expected time to the nearest integer. (10 Marks)

Activity	Preceding	Optimistic Time	Probable Time	Pessimistic Time
A	--	7	9	14
B	A	2	2	8
C	A	8	12	16
D	A	3	5	10
E	B	4	6	8
F	B	6	8	10
G	C, F	2	3	4
H	D	2	2	8
I	H	6	8	16
J	G, I	4	6	14