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CENTRAL UNIVERSITY

END-OF-SEMESTER II EXAMINATIONS

2017/2018



DEPARTMENT OF MANAGEMENT AND PUBLIC ADMINISTRATION

**CBFW304 : PRODUCTION AND OPERATIONS MANAGEMENT
3 CREDITS**

**SESSION: MORNING, EVENING AND WEEKEND
DURATION : 3 HOURS
MAY 26, 2018**

STUDENT ID No: 201500375.....

INSTRUCTIONS: **Section A: Answer ALL questions**
 Section B: Answer ALL questions
 Section C: Answer only ONE question

**DO NOT TURN OVER THIS PAGE UNTIL YOU HAVE BEEN TOLD TO DO SO BY
THE INVIGILATOR**

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NOTE: ALL ANSWERS MUST BE WRITTEN IN THE ANSWER BOOKLET

SECTION A (50marks)

ANSWER ALL QUESTIONS. WRITE ONLY THE LETTER THAT CORRESPONDS TO THE CORRECT ANSWER

1. Business organizations consist of three major functions namely Finance, Operations and
A. Distribution
B. Marketing
C. Production
D. Accounting

2. Which of the following defines operations management?
A. the creation of goods and services
B. storage/transportation systems within an organisation
C. the management of systems and processes that create goods and/or provide services
D. the management of transformation and communication processes within an organisation

3. The sequence of activities and organisations involved in producing and delivering a good or service defines-----
A. assembling
B. operations
C. procurement
D. supply chain

4. The responsibilities of the operations manager are:
A. planning, organizing, staffing, procuring, and reviewing
B. planning, organizing, staffing, directing, and controlling
C. forecasting, designing, planning, organizing, and controlling
D. forecasting, designing, operating, procuring, and reviewing

5. The difference between selling price and variable cost per unit of a product is called
A. margin of safety
B. breakeven point
C. contribution per unit
D. profit

5. Which of the following is **NOT** an ethical guideline for conducting research with humans?
 - a. Getting informed consent of the participants
 - b. Telling participants they must continue until the study has been completed
 - c. Keeping participants identity anonymous
 - d. Telling participants they are free to withdraw at any time
6. A set of principles to guide and assist researchers in deciding which goals are most important and in reconciling conflicting values when conducting research is called
 - a. Research ethics
 - b. Deontological approach
 - c. Utilitarianism
 - d. None of the above
- * 7. IRB is an acronym for which of the following?
 - a. Internal Review Board
 - b. Institutional Rating Board
 - c. Institutional Review Board
 - d. Internal Request Board
8. Sources of researchable problems can include
 - a. Researchers' own experiences as practicing nurses
 - b. Practical issues that require solutions
 - c. Theory and past research
 - d. All of the above
9. Accurate attribution of materials to its sources. Which of the following is referred to when another person's idea is inappropriate credited as ones' own?
 - a. Plagiarism
 - b. Quotation
 - c. Assumption
 - d. Paraphrase
10. Who is the first nurse researcher?
 - * a. Florence Nightingale
 - b. Dorothea Orem
 - c. Sandarac Park
 - d. Sr. Callista Roy
11. The device or technique an investigator employs to collect data is called
 - a. Sample
 - b. Instrument
 - c. Hypothesis
 - d. Concept

12. Which of the following communicate the results of the research to the readers and also facilitate the description of the data.
 - a. Hypothesis
 - b. Statistics
 - c. Research problem
 - d. Tables and Graphs
13. A student nurse wanted to know if the time she spends studying for the end of semester examination is proportional to the marks she achieved. During level 200 end of semester examination, she studied for six months continuously prior to taking her exams and gained 60%. During level 300 exam, she studied again for a total of one year continuously and gained 74%. During level 400 exams, she studied for a total of one and a half year and gained 82%. The research design she used is
 - a. Comparative
 - b. Longitudinal study
 - c. Experimental study
 - d. Cohort study
14. In the problem statement, the researcher.....
 - a. Provides some background on the phenomenon
 - b. States statistics that closely relate to the phenomenon
 - c. Provides statistics concerning the phenomenon
 - d. a and b
15. A student nurse visited a tribe located somewhere in China. She studied the way of life, tradition and the societal structure of these people. Which among the following is an appropriate research design?
 - a. Historical
 - b. Case study
 - c. Phenomenological
 - d. Ethnographic
16. If you get caught plagiarizing, the most severe penalty Central University can administer is
 - a. A reduction of grade on the assignment
 - b. A grade of zero on the assignment
 - c. A failing grade in the course
 - d. A suspension from Central University
17. Which of the following cases of plagiarism would be justifiable?
 - a. If you are part of a group presentation and another member of the group plagiarize
 - b. If you did not know it was plagiarism
 - c. If you did not know the original source
 - d. None. Plagiarism is never justifiable

18. Which of the following is not a step in the forecasting process?

- A. determine the purpose and level of detail required
- B. eliminate all assumptions
- C. establish a time horizon
- D. select a forecasting model

19. Minimizing the sum of the squared deviations around the line is called:

- A. mean squared error technique
- B. mean absolute deviation
- C. double smoothing
- D. least squares line

20. The two general approaches to forecasting are:

- A. mathematical and statistical
- B. qualitative and quantitative
- C. judgmental and qualitative
- D. historical and associative

21. Which phrase describes the forecast error?

- A. associative forecast minus Actual demand
- B. Forecast demand - Actual demand
- C. Predicted value minus forecast value
- D. Actual value minus forecast value

22. Mr. Mensah, the chief executive officer of MENSOSA Company Limited had the following data about demand for his products in 2017.

Forecast demand for 2017 = 4500 units; Actual demand for 2017 = 4300 units

$$\begin{aligned} F &= F_{t-1} + \alpha (A_{t-1} - F_{t-1}) \\ &= 4500 + 0.35(4300 - 4500) \end{aligned}$$

$\alpha = 0.35$, What is the forecast for 2018?

- A. 4570 units
- B. 4100 units
- C. 4430 units
- D. 4450 units

23. Which of the following is not a reason for redesigning a product or service?

- A. to reduce labour or material cost
- B. to increase the level of employee satisfaction
- C. to increase the level of customer satisfaction
- D. to attract and increase customer demand

22. Ideas for new or improved designs can come from:

- A. customers
- B. competitors
- C. research and development departments
- D. all of the above

23. 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. benchmarking

24. Which of the following is a dimension of quality?

- A. conformance
- B. reliability
- C. performance
- D. all of the above

Use the following information, to answer questions 25 and 26

Effective capacity = 60 units per day

Design capacity = 100 units per day

Utilization = 48%

25. What would efficiency be?

- A. 80%
- B. 35%
- C. 48%
- D. 60%

26. Compute capacity cushion

- A. 52%
- B. 66.66%
- C. 50%
- D. 40%

27. Characteristics of an organisation's goods or services that cause it to be perceived as better than the competition is referred to as -----

- A. Order winners
- B. Competences
- C. Order qualifiers
- D. Quality-based

28. The assessment of the environmental impact of a product or service throughout its useful life is called -----

- A. Life cycle assessment
- B. Product life cycle
- C. Product value analysis
- D. Environmental chain analysis

29. Which of the following is a phase in the design / redesign and development of a product?

- A. Idea generation
- B. Feasibility analysis
- C. Prototype development
- D. All of the above

30. The ability of a good or service to consistently meet or exceed customer expectations defines -----

- A. Quality
- B. Competitiveness
- C. Order winner
- D. Performance

The operations manager of Ebeyeyie Company Limited examined the relationship between Production(X) in units and Cost (Y) in million Ghc, and came out with the following:

$Y = 160 + 0.85 X$. Use the information to answer questions 31 to 34

31. What is the fixed cost of production? Ghc million

- A. 85
- B. 160.85
- C. 0.85
- D. 160

32. Calculate the total cost of production when 100 units are produced.

- A. Ghc245m
- B. Ghc 170m
- C. Ghc 260m
- D. Ghc 1600m

33. When production increases by one more unit, what will be the increase in cost of production?
- A. Ghc 160m
 - B. Ghc 245m
 - C. Ghc 85m
 - D. Ghc0.85m
34. Calculate the units to be produced if cost of production is to be maintained at Ghc202.5m.
- A. 34units
 - B. 55units
 - C. 40units
 - D. 50 units
35. Manufacturing organisation is goods oriented whilst service organisation is -----
- A. product-oriented
 - B. serving –oriented
 - C. production-oriented
 - D. act-oriented
36. What are time-based strategies?
- A. Strategies that focus on reduction of time needed to accomplish a task
 - B. Strategies that focus on maximizing profit
 - C. Strategies that focus on quality in all phases of production
 - D. Strategies that minimize cost of production.
37. Which of the following strategic approach involves blending several core competences such as cost, quality, reliability, and flexibility?
- A. Cost leadership approach
 - B. Strategic intent
 - C. Quality-based strategy
 - D. Agile operations

38. Multifactor productivity is also referred to as ----
- A. Output-input productivity
 - B. Single factor productivity
 - C. Input-Output ratio
 - D. Total factor productivity
39. All the following are elements of good Forecast except?
- A. forecast techniques should be complex to understand
 - B. forecast should be timely
 - C. forecast should be reliable
 - D. forecast should be cost effective
40. A design that results in products or services that can function over a broad range of conditions is called
- A. Recycling design
 - B. Robust design
 - C. Re-engineering design
 - D. Re-manufacturing design
41. All the following are consequences of poor quality except -----
- A. Loss of business
 - B. Incur Liability
 - C. Loss of productivity
 - D. Increase market share
42. Under which time horizon do firms plan for new product development, facility location, and research and development?
- A. Short -term
 - B. Medium-term
 - C. Medium to Long term
 - D. Long-term

43. Which of the following is **not very critical** when designing or redesigning a product?
- A. Liability issues
 - B. Ethics
 - C. Employees remuneration
 - D. Cost
44. Which of the following is a reason for measuring productivity?
- A. To track an operating unit's performance over time
 - B. To judge the performance of the entire industry
 - C. To monitor the performance of employees
 - D. All of the above
45. Which of the following is equal to Actual Output?
- A. Efficiency x Utilisation
 - B. Effective capacity x Utilisation
 - C. Utilisation / design capacity
 - D. Efficiency x Effective capacity
46. Walter Shewart, W. Edward Deming, and Joseph Juran are associated with -----
- A. Quality
 - B. Capacity planning
 - C. Product Design
 - D. Forecasting
47. The philosophy that seeks to make never -ending improvement to the process of converting inputs into output is -----
- A. Capacity planning
 - B. Continuous improvement
 - C. Six sigma
 - D. Quality assurance

48. Quality circle refers to -----

- A. A system of quality improvement where individuals are punished for their negligence
- B. A philosophy where everyone in an organization is responsible for quality enhancement
- C. A group of workers who meet to discuss ways to improve the quality of products or process
- D. A place where managers meet to deliberate on quality issues.

49. What does PDSA cycle stand for? -----cycle

- A. Plan-Do-Study-Act
- B. Plan-Do-Search-Announce
- C. Produce-Distribute-Share-Advise
- D. Plan-Distribute-Study-Act

50. Budgeting, analysis of investment proposals, and provision of funds are activities associated with the _____ function.

- A. operation
- B. marketing
- C. purchasing
- D. finance

SECTION B (20 marks)-2marks each

ANSWER ALL QUESTIONS IN THIS SECTION

FILL IN THE BLANK SPACES

1. Building capacity in anticipation of future demand increases is called-----strategy
2. Taking a systems view point with regard to operations in today's environment increasingly leads to decision-makers to consider-----in response to global warming.
3. As competition intensifies, businesses need to strategise to remain -----
4. The forecasting method which uses anonymous questionnaire to achieve a consensus forecast is -----
5. The two strategies that are used to achieve mass customization are ----- and -----.
6. If a firm's output rate increases and as a result the average(unit) cost of production also increases, the firm is said to be experiencing-----
7. In an assembly operation at a furniture factory, six employees assembled an average of 450 standard dining chairs per 5-day week. The labour productivity of this operation is ---
8. A forecast based on the previous forecast plus a percentage of the forecast error is called-----
9. The Balanced Scorecard is a useful tool for helping managers translate their strategy into action. Two of the dimensions of the Balanced Scorecard are ----- and -----.
10. Product design that uses computer graphics is called -----

SECTION C (30 marks)
ANSWER ONLY ONE QUESTION FROM THIS SECTION

QUESTION ONE

FERON LTD manufactures 400 plastic tables every month and sells them for GHC 100 each. Fixed monthly overheads are GHC 6,000 and standard cost of one plastic table is as follows:

	GHC
Materials	30
Direct labour	16
Variable Overhead	14

Required

Calculate for one month:

- i. the variable cost of one table (1 marks)
- ii. the breakeven point in units, and sales value (4marks)
- iii. the contribution per unit (2marks)
- iv. the number of plastic tables to be sold to realise a profit of GHC 8,000 (5marks)

In an attempt to boost sales, FERON LTD plans to reduce the selling price of the plastic tables by 4%; improve the quality by spending 20% more on materials; and increase its advertising(Fixed cost) by GHC 2,000 a month:

Using the new planning policies;

- v. Calculate the new breakeven point in units and in sales value (6marks)
- vi. Compute the number of plastic tables to be sold to realise a profit of GhC8,000 (7marks)
- vii. Carefully explain the purpose and importance of breakeven analysis to a friend of yours who has no knowledge in Finance, Operations management, Accounting, Economics or Business. (5 marks)

(Total = 30 marks)

QUESTION TWO

The following table shows the observations of the ages (X) in years of 12 patients and their systolic blood pressures (Y) at a clinic on a day:

Age(X)	56	42	72	36	63	47	55	49	38	42	68	60
Blood pressure(Y)	147	125	160	118	149	128	150	145	115	140	152	155

Required

- i. Calculate the values of $\sum X$; $\sum Y$; $\sum XY$; $\sum X^2$; $\sum Y^2$ (5 marks)
- ii. Compute the values of "a" and "b" in the Least square regression line $Y = a + bX$ (6marks)
- iii. Determine the specific least square regression equation (2marks)
- iv. Using the specific regression equation obtained above predict, forecast or estimate the blood pressure of Maame Adjoa Moko who is 70 years of age. (3marks)
- v. If the blood pressure of a man is 185, estimate his age. (3 marks)
- vi. Explain the meaning and implication of the values for "a" and "b" in the specific least square regression equation obtained above. (6marks)
- vii. Carefully explain the purpose and importance of regression to a group of trainees who know nothing about Statistics, Operations management, Economics or Business. (5 marks)

(Total = 30marks)

NOTE:

LEAST SQUARE REGRESSION LINE (EQUATION)

$$\underline{\bar{y}} = a + bX$$

FORMULA

$$b = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2}$$

OR

$$b = \frac{\sum xy - n\bar{x}\bar{y}}{\sum x^2 - n\bar{x}^2}$$