



SUPPLEMENTARY EXAMINATIONS JULY 2023

**OPERATIONS MANAGEMENT
BEC 214/BEC 214E**

TIME: 2 HOURS

MARKS: 75

INTERNAL EXAMINERS

DR S Omonona

Mr S Mfazi

Moderator: Prof O.A. Oni

This paper consists of 9 pages including the cover page.

INSTRUCTIONS

- 1. The examination paper comprises a total of SEVENTY-FIVE (75) marks**
- 2. SECTION A: Question 1 (25 marks), is compulsory.**
- 3. SECTION B: Question 2 (25 marks), is also compulsory.**
- 4. SECTION C: Answer only ONE ADDITIONAL QUESTION (25 marks); either question 3 or 4.**
- 5. Failure to obey the instructions will negatively impact your results.**
- 6. Please indicate all questions answered clearly and correctly on the answer sheet.**
- 7. Questions can be answered in any order.**

SECTION A: (COMPULSORY) – Question 1-25 [25 Marks]

1. Under-capacity utilisation occurs when an organisation has _____ available than is required. (1)
 - a. Sufficient capacity.
 - b. Less capacity.
 - c. More capacity.
 - d. Not one of the above.
2. There are a number of reasons for the occurrence of economies of scale in capacity planning. Which ONE of the following is NOT one of the reasons? (1)
 - a. Learning by employees.
 - b. Fixed cost allocation.
 - c. Purchasing cost would decrease.
 - d. Sales cost would increase.
3. _____ is the design capacity minus all possible allowances. (1)
 - a. Actual capacity.
 - b. Effective capacity.
 - c. Output capacity.
 - d. Input capacity.
4. One of the primary considerations to adhere to before the general steps in capacity planning can be considered is *construct for transformation*. Which of the following statements describe this factor? (1)
 - a. Facilities and equipment are designed in such a manner that future changes can be incorporated.
 - b. The available technology will establish the growth by which the capacity can be reduced or increased.
 - c. Growth of technology and capacity will establish optimum operating levels.
 - d. Good capacity plans commence with precise estimation of demand.
5. The final step to be considered during capacity planning is: (1)
 - a. Assess key qualitative issues for each alternative.
 - b. Monitor the results.
 - c. Evaluate existing capacity and facilities and identify any gaps.
 - d. Select the alternative with the best analysis for future utilisation.

6. BOL refers to: (1)
- a. Best operating levels
 - b. Best operational levels
 - c. Billable operating levels
 - d. Best organisational levels
 - e. None of the above.
7. TOC refers to: (1)
- a. Theory of constructs
 - b. Theory of constraints
 - c. Theory of contexts
 - d. Theory of corporations
 - e. None of the above.
8. Identify the step that is not associated with TOC: (1)
- a. Identify
 - b. Subordinate
 - c. Elevate
 - d. Exploit
 - e. Replace.
9. Identify the incorrect statement: (1)
- a. Capacity is a critical resource
 - b. Capacity is an infinite resource
 - c. Capacity is never constant
 - d. Capacity can be defined as a dimension of time
 - e. None of the above are incorrect.
10. Which of the following is not part of an important capacity decision? (1)
- a. Maintaining a balance
 - b. Capacity requirements
 - c. System stasis
 - d. All of the above are correct
 - e. None of the above are correct

11. The availability and accuracy of _____ determine the ease of capacity planning. (1)
- a. Forecasted supply.
 - b. Forecasted budget.
 - c. Forecasted output.
 - d. Forecasted demand.
12. In capacity planning TOC stands for: (1)
- a. Terms of contracts.
 - b. Terms of capacity.
 - c. Theory of constraints.
 - d. Total overhead costs.
13. A bottleneck in machine or operation would create _____ upstream machines or operations. (1)
- a. Higher utilisation of.
 - b. Blockages to.
 - c. Starvation of.
 - d. Fewer interruptions of.
14. _____ varies significantly with the quantity of products produced by the organisation. (1)
- a. Fixed cost.
 - b. Selling price.
 - c. Customer demand.
 - d. Variable cost.
15. The break-even point is where: (1)
- a. $\text{Total income} = \text{Fixed cost} + (\text{variable costs} \times \text{quantity produced})$.
 - b. $\text{Total costs} = \text{Fixed costs}$.
 - c. $\text{Variable costs} \times \text{quantity produced} = \text{price per unit} \times \text{quantity produced}$
 - d. None of the above.

16. A _____ can be defined as a methodology that will be utilised on a continuous basis that will result in the creation of a good or service that can be delivered to a customer at a profit. (1)
- a. Period.
 - b. Design.
 - c. Development.
 - d. Process.
17. There are four key process types from which management can choose. Which ONE of the following is NOT such a process type? (1)
- a. Job process.
 - b. Product process.
 - c. Batch process
 - d. Continuous flow process.
18. Which of the following statements describe a batch process? (1)
- a. This process type is highly adaptable and is structured around specific events.
 - b. This process is product focused with only one product flowing through the process at any one time.
 - c. This is also known as the standardised job shop process and is by nature irregular and highly flexible with the same parts, components or products being manufactured continuously and completed entirely before moving to the next.
 - d. This process is known as the repetitive process, repetitive focus or assembly line process where one type of product is produced in a straight-line configuration.
19. Which of the strategies for the manufacturing process can be described as one that will have large inventories of products available in anticipation of customer orders? (1)
- a. Make to stock strategy.
 - b. Make to order strategy.
 - c. Assemble to order strategy.
 - d. None of the above.

20. The _____ process is typified by producing a great variety of services with low volumes where the customer will be part of the process for prolonged periods of time. (1)
- a. Service shop process.
 - b. Mass service.
 - c. Professional service process.
 - d. Not one of the above.
21. A forecast involves taking _____ data and projecting data into the future, using mathematical models. (1)
- a. Future
 - b. Historical.
 - c. Simple.
 - d. Multiple.
22. If the forecast of demand is high, the purchasing department must: (1)
- a. Address labour requirements.
 - b. Revise the budget.
 - c. Produce more.
 - d. Calculate raw materials requirements.
23. There are three categories of time horizons for forecasting. Which of the following statements is true for the long-range horizon? (1)
- a. It is used for planning purchasing transactions.
 - b. It is used in the planning of production plans.
 - c. It is used in the planning of new capital expansion projects.
 - d. It is used for measures to ensure a level workforce.
24. The first step in the preparation of a forecast is: (1)
- a. Know what the purpose is for a forecast.
 - b. Analyse the relevant data to be used.
 - c. Select the technique to be used to make the forecast.
 - d. Choose the time horizon to be used.
25. A forecast might be ineffective because an organisation fails to monitor the _____ of the forecast. (1)
- a. Value.
 - b. Accuracy.
 - c. Applicability.
 - d. Appropriateness

SECTION B: QUESTION 2 (COMPULSORY) [25 marks]

Read the passage below and answer the questions that follow:

Supply-chain management regulations which govern the procurement of goods by state institutions, widely considered to be the centre of fraud and corruption in government institutions, could come under review.

KwaZulu-Natal Premier Zweli Mkhize told top government leaders – including MECs, heads of departments, municipal managers and mayors – that supply-chain management would be the subject of robust debates at the cabinet lekgotla, which opened in Durban on Wednesday.

“We cannot tolerate the image of the province being tainted... If we think there are weaknesses, we have to actually tighten the whole process and regulations,” said Mkhize.

Supply-chain management and the government tender systems have recently come under scrutiny, with calls that they should be reviewed with a view to tightening controls.

Public outcry has been triggered by the Manase probe into affairs of the eThekweni metro. It found that there was massive rigging of tenders and flouting of regulations. This resulted in the irregular expenditure of more than R2 billion in eThekweni alone.

This week, eThekweni municipal manager Sibusiso Sithole announced that he had moved the supply-chain management unit from the procurement and infrastructure cluster to the Treasury cluster.

Addressing officials at the first day of the KwaZulu-Natal cabinet lekgotla, Mkhize said supply-chain regulations were always reviewed. “This is because they are about ensuring fairness, competitiveness, transparency, value-for-money and quality of service.”

He said that such moves were informed by the government’s assessment of internal audits processes, the forensic reports, the criminal investigations done and court cases.

SECTION C: ANSWER QUESTION FROM THIS SECTION

QUESTION 3 (OPTIONAL)

[25 marks]

3 (a) Compare qualitative and quantitative techniques in forecasting. (10)

3 (b) A shoe maker bought a new machine with the capacity of making 300 shoes per month. She invested in the training of her workers in operating the machine effectively. In the first month she spent R83,200 on labour, material, maintenance and other costs and was able to make 500 shoes which she was able to sell all at R250 per pair.

3b (i) Calculate the productivity of her factory (8)

3b(ii) Calculate the efficiency of the machine. (7)

OR

QUESTION 4 (OPTIONAL) [25 marks]

4 (a). Explain in your own words the reasons for implementing a material requirement planning (MRP) system in an organisation. (10)

4 (b). List and briefly discuss the knowledge needed by an operations manager to guarantee effective management of dependent demand. (15)