Total No. of Questions: 22

Enrollment No : _____

MEDICAPS UNIVERSITY

Faculty of Engineering

End Semester Examination May 2025

ME3EL19 Operations Management

Programme	:	B.Tech.	**Branch/Specialisation**	:	ME
Duration	:	3 hours	**Maximum Marks**	:	60

Note: *All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.*

Section 1 (Answer all question(s))

		Marks	CO	BL
Q1.	Operations management is primarily concerned with :	1	1	1

- ○ Managing people
- ◉ Managing resources to produce goods and services
- ○ Managing marketing campaigns
- ○ Managing financial accounts

Q2.	Which approach in operations management focuses on eliminating waste?	1	1	1

- ◉ Lean manufacturing
- ○ Mass production
- ○ Batch processing
- ○ Job production

Q3.	Which of the following is a key advantage of Integrated Product Development (IPD)?	1	2	1

- ○ Increased lead times
- ○ Higher costs of production
- ◉ Faster time-to-market
- ○ Reduced cross-functional collaboration

Q4.	Capacity Planning is concerned with:	1	2	1

- ◉ Determining production output levels
- ○ Setting financial goals
- ○ Hiring more employees
- ○ Increasing advertising budgets

Q5.	Which type of layout is most suitable for mass production?	1	3	1

- ○ Process layout
- ◉ Product layout
- ○ Fixed position layout
- ○ Cellular layout

Q6.	Which is a key characteristic of an FMS?	1	3	1

- ○ Low flexibility
- ○ Single product production
- ◉ Automation of material handling and processing
- ○ High production lead time

Q7.	Which system aims to minimize inventory levels by synchronizing production and demand?	1	4	1

- ○ Material Requirements Planning
- ○ Enterprise Resource Planning
- ◉ Just-in-Time (JIT)
- ○ Aggregate Planning

Q8.	Which is not a strategy used in Aggregate Planning?	1	4	1

- ○ Level strategy
- ○ Chase strategy
- ○ Subcontracting
- ◉ Fragmentation strategy

Q9.	Which of the following is not a characteristic of services?	1	5	1

- ○ Intangibility
- ○ Perishability
- ○ Heterogeneity
- ◉ High Inventory Levels

Q10. What is the main focus of the Theory of Constraints (TOC)? **1 5 1**

- ○ Eliminate all machines in production
- ◉ Identify and manage system bottlenecks
- ○ Maximize buffer stock
- ○ Minimize customer interaction

Section 2 (Answer all question(s))

Marks CO BL

Q11. Define operations management. What are the key responsibilities of an operations manager? **3 1 1**

Rubric	Marks
Describing any 3 key responsibilities of an Operations Manager 0-5 marks each	1.5
Define Operations Management	1.5

Q12. (a) What are the key differences between goods and services in terms of production and consumption? **7 1 2**

Rubric	Marks
Write any 4 between goods and services in terms of production	3.5
Write any 4 between goods and services in terms of consumption	3.5

(OR)

(b) Describe the historical evolution of operations management. How did industrial revolution impact the field of operations management?

Rubric	Marks
Describe the historical evolution of Operations Management	3.5
How did Industrial Revolution impact the field of Operations Management?	3.5

Section 3 (Answer all question(s))

Marks CO BL

Q13. Differentiate between short-term and long-term capacity planning. **3 2 1**

Rubric	Marks
write 3 difference (1 EACH)	3

Q14. (a) Discuss the role of qualitative and quantitative factors in selection of facility location. **7 2 2**

Rubric	Marks
role of qualitative factors in selection of facility location	3.5
role of quantitively factors in selection of facility location	3.5

(OR)

(b) What are the risks and challenges associated with Business Process Outsourcing (BPO)?

Rubric	Marks
Explain any 7 risks and challenges associated with Business Process Outsourcing (BPO)	7

Section 4 (Answer all question(s))

Marks CO BL

Q15. Define form design and functional design. How are they interrelated in product development? **4 3 2**

Rubric	Marks
Define Form Design and Functional Design.	3
How are they interrelated in product development	1

Q16. (a) A project has the following times schedule- **6 3 3**

Activity	Times in Weeks	Activity	Times in Weeks
(1 – 2)	4	(5 – 7)	8
(1 – 3)	1	(6 – 8)	1
(2 – 4)	1	(7 – 8)	2
(3 – 4)	1	(8 – 9)	1
(3 – 5)	5	(8 – 10)	8
(4 – 9)	6	(9 – 10)	7
(5 – 6)	4		

Construct the network and compute
(i) T_E and T_L for each event
(ii) Float for each activity
(iii) Critical path and its duration

Rubric	Marks
Construct the network	2
Calculate TE and TL for each event	2
Calculate Float for each activity	1
Critical path and its duration	1

(OR)

(b) Describe the steps involved in solving a line balancing problem using the largest candidate rule. Support your explanation with a flowchart or diagram.

Rubric	Marks
Describing the steps involved in solving a Line Balancing problem	4
Drawing flowchart or diagram.	2

Section 5 (Answer any 2 question(s))

Marks CO BL

Q17. Explain the concept of a Master Production Schedule (MPS) and its role in production planning. **5 4 2**

Rubric	Marks
Explain the concept of a Master Production Schedule (MPS)	3
Explain its role in production planning.	2

Q18. Explain the concept of safety stock and its importance in material management. **5 4 2**

Rubric	Marks
Explain the concept of safety stock	2.5
Explain its importance in material management.	2.5

Q19. Compare centralized and decentralized purchasing systems. Which is better and why? **5 4 2**

Rubric	Marks
Compare centralized and decentralized purchasing systems	4
Which is better and why?	1

Section 6 (Answer any 2 question(s))

Marks CO BL

Q20. Explain the difference between pull and push production systems with examples. **5 5 2**

Rubric	Marks
Explain the difference between pull and push production systems	3
giving examples.	2

Q21. What is Kaizen? Explain its significance in lean manufacturing. **5 5 2**

Rubric	Marks
What is Kaizen	2
Explain its significance in Lean Manufacturing.	3

Q22. Explain the concept of service operations management and its challenges. **5 5 2**

Rubric	Marks
Explain the concept of Service Operations Management	3
Explain its challenges.	2

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