

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)**

CLASS: MBA  
BRANCH: MBA

SEMESTER : 3<sup>rd</sup>  
SESSION : MO/2025

**SUBJECT: MT559 MANUFACTURING PLANNING AND CONTROL**

TIME: 3 Hours

FULL MARKS: 50

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1 A company plans to launch three new products: [10] CO1 BL2
- (A) Luxury handmade watches  
(B) Seasonal fashion apparel  
(C) Packaged fruit juice
- For each product, determine the most appropriate production method (job, batch, or flow). Provide detailed justification considering cost, customization, skill requirements, and market demand.
- Q.2 Compare and contrast the Manufacturing to Stock (MTS) and Manufacture to Order (MTO) production strategies with respect to lead time, customization, cost implications, inventory management, and demand forecasting. Illustrate your answer using generic industry examples. [10] CO2 2
- Q.3 “MRP-II, KANBAN, and OPT represent three fundamentally different approaches to planning and controlling production systems.” Explain in detail the core philosophy, operating mechanism, and workflow of each of these systems. Compare them with respect to: [10] CO3 2
- (a) Push vs. Pull vs. Constraint-based production  
(b) Treatment of bottlenecks  
(c) Material and information flow  
(d) Strengths, limitations, and typical application areas.
- Illustrate your answer with suitable examples.
- Q.4 Explain (any two): [10] CO4 2
- a) Computer Integrated Manufacturing (CIM)  
b) Just-in-Time (JIT)  
c) Flexible manufacturing systems (FMS)
- Q.5 Briefly describe each of the following priority rules – FCFS, SPT, EDD, and LPT – giving for each a short definition plus its main strengths and weaknesses. [10] CO5 5
- Given the five jobs waiting at a work centre with processing (including setup) times and due dates shown below, evaluate the schedules produced by each priority rule:

Jobs	Job time days	Due dates(days)
a	12	15
b	6	24
c	14	20
d	3	8
e	7	6

For each rule – (a) FCFS, (b) SPT, (c) EDD, and (d) LPT – compute the resulting job sequence, completion times, lateness (and/or number of late jobs), and evaluate performance. Finally, state which rule is best for this specific case and justify your choice (explain why that rule performs best based on the computed metrics).