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

CLASS: BE **SEMESTER : VII**
BRANCH: ALL **SESSION : MO/19**

SUBJECT: PE7005 COMPETITIVE MANUFACTURING STRATEGIES

TIME: 3.00Hrs. **FULL MARKS: 60**

INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
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.

Q.1(a) What is meant by the term manufacturing strategy? [2]
Q.1(b) How resources and capabilities of a firm are useful for creating a cost or differentiation advantage? [4]
Q.1(c) Discuss the functions and regulations of WTO to ensure that trade flows as smoothly, predictably and freely as possible. [6]

Q.2(a) What are the potential benefits of using modularity concept in product design? [2]
Q.2(b) What is vendor rating? How the performances of vendors are evaluated? [4]
Q.2(c) What does the term 'design for manufacturability' means? What are the guidelines to design for manufacturability? [6]

Q.3(a) How do materials and information flow during just in time manufacturing? [2]
Q.3(b) What is kanban system? Explain how the kanban system works in a plant. [4]
Q.3(c) "JIT principles is based on planned elimination of all waste and on continuous improvement of productivity" – Justify the comment by focusing on various types of wastes which are required to be reduced by use of JIT principles. [6]

Q.4(a) "A stitch in time saves nine" – Correlate the comment with TQM. [2]
Q.4(b) Given the product structure tree (Fig. 1), the lead time and demand information, provide a materials requirement plan that defines when and how many units of each component will be needed. [10]
Lead Times: A - 1 day, B - 2 days, C - 1 day, D - 3 days, E - 4 days, F - 1 day.
Demands: Day 10 - 50 A, Day 8 - 20 B (Spares), Day 6 -15 D (Spares).
Parts on hand: B - 5, C - 20, D - 12, F – 15.
20 pieces of D are scheduled to arrive in 5th day.

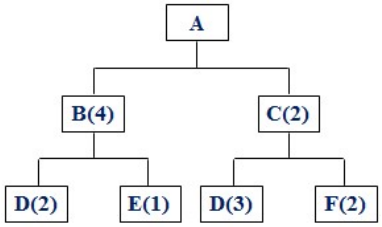


Fig.1

Q.5(a) Why is simulation so critical to manufacturing strategy? [2]
Q.5(b) Discuss the applications of 'Human-Machine Interactions and Virtual Reality' in intelligent manufacturing. [4]
Q.5(c) Explain with examples the stochastic and deterministic simulation modeling techniques. [6]

Q.6(a) "Group Technology has been applied to manufacturing systems known as Cellular Manufacturing" – Explain the phrase in quotation. [2]
Q.6(b) How Process similarity Matrix Method is used to determine machine requirements in a machining cell? [4]
Q.6(c) What are the sufficient and necessary conditions for RMS? Justify with examples. [6]

Q.7(a) Discuss the concept of "Factory of Future". [2]
Q.7(b) What are the main objectives of CIM? [4]
Q.7(c) Explain the scope of CAD/CAM, CAPP and CAQ in CIM. [6]

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