

(Hours: 03)

Marks: 80

- Note:**
1. Question number 1 is **compulsory**
 2. Solve any **THREE** questions from remaining **FIVE** questions
 3. **Assume** suitable data if required.
 4. Assumptions made should be clearly stated.



Q.1 Attempt **any Four** questions of the following.

- (a) "MPC contributes to effective utilization of firm resources" comment. 05
- (b) Explain the function of master production schedule. 05
- (c) What is MRP II? 05
- (d) A manufacturing company has a product line consisting of four work station(A,B,C,D) in series individual work station capacity are A = 430, B = 380, C = 350, D = 410. Actual output per line is 310 units per day. Calculate System Capacity, Efficiency of production line. 05
- (e) How forecasting is different from prediction? 05
- Q.2** (a) What is the role of capacity planning system in MPC system? Explain the following terms related to capacity planning in brief:- 10
- i. Resource requirement planning
 - ii. Rough cut planning.
 - iii. Capacity requirement planning.
 - iv. Input/output control
- (b) State the seven wastes as being the targets of continuous improvement in JIT system. 10
- Q.3** (a) The sales of cell phones manufacture by company are given. Forecast the demand for the next three years using least square method. 10

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Sales ['000]	30	33	37	39	42	46	48	50	55	58

- (b) Explain general MPC system that firm can use for planning and controlling its manufacturing operations. 10
- Q.4** (a) Define aggregate planning. What are it's objectives? 05
- (b) Explain Demand Management in MPC system. 05
- (c) Write short note on **any Two** the following: 10
- i) Production Activity and Control (PAC) techniques.
 - ii) Critical ratio scheduling
 - iii) Sales and operation planning

- Q.5 (a) ABC company produces soaps at their works in Mumbai. Aggregate planning measure used by ABC is tons of soap which includes making and packaging of soap. The planning is done for a time horizon of one year and 4 quarters. 10

Quarter	I	II	III	IV
Demand [tones]	40	60	50	45

The company has a regular workforce which can produce 35 tonnes if output per quarter. The workers are allowed to work overtime with the restriction that the extra time cannot be more than 20 per cent of the regular time in any time. The output rate is 25 per cent higher than regular time during overtime but the overtime expenses are 40 per cent more than that of regular time. The company subcontracts the soap making and packaging operation to SSI unit but only at the cost of 50 per cent premium than the cost of regular production. The regular time production costs are Rs. 10,000 per ton. No shortages are allowed as per company policy. Inventory carrying cost is Rs. 5,000 per ton per annum. Design the cost efficient aggregate plan assuming zero starting inventories. Compute total production cost.

- (b) Complete the MRP plan for the item X shown below. 10

Order Quantity = 70 Lead time = 4 Weeks Safety stock = 40		Weeks											
		1	2	3	4	5	6	7	8	9	10	11	12
Projected Requirements		20	20	25	20	20	25	20	20	30	25	25	25
Scheduled Receipts			70										
On hand at the end of period	(65)												
Planned order release													

- Q.6 Write short note on (any Four) 20

- i) Gantt Chart scheduling.
- ii) Characteristics of forecast
- iii) MPC Design Options
- iv) Extending MPC integration to customers
- v) Integration of MRP with JIT.