

(Three Hours)

Total Marks: 80

Instructions:

- Q. 1 is compulsory.
- Attempt any **THREE** questions from the remaining questions
- Assume suitable data wherever necessary
- Figures to the right indicate full marks.

- Q.1 Write short notes on. (Any Four). 20
- a. Electro-Chemical Machining
 - b. Chemical Vapour Deposition coating
 - c. Enabling Technologies for Collaborative Manufacturing
 - d. Nano Manufacturing techniques
 - e. Cloud manufacturing
- Q.2 a. Explain various processes of manufacturing and shaping of metals and ceramics. 10
- b. What is Ultra sonic machining? Explain its construction, working principle, and process parameters. 10
- Q.3 a. What is need of nontraditional machining processes? Explain working principle of Electric Discharge Machining with its applications. 10
- b. What are Cleaners? Explain any one methods of cleaning. What is necessity of surface coating? Explain ceramic and organic methods of coating, 10
- Q.4 a. What is Physical Vapour Deposition (PVD) coating and explain its procedure. 10
- b. What is an automated production line? In which conditions it is useful? 10
- Q.5 a. Explain various factors considered for analysis of transfer lines. 10

- b. Complete the following MRP record

10

Lot size=80, Lead Time=1month, Safety stock=40 and Projected available balance=5

Period (Months)	1	2	3	4	5
Gross Requirement		35	40	45	25
Scheduled receipts	70				
Projected available balance					
Planned order release					

- Q.6 a. Explain benefits and limitations of Collaborative Manufacturing.

10

- b. A company is engaged in the assembly of a wagon on a conveyor. 500 wagons are required per day. Production time available per day is 420 minutes. The other information is given below regarding assembly steps and precedence relationships. Find the minimum number of workstations and line efficiency

10

Task	Time (sec)	Immediate predecessors
A	45	None
B	11	A
C	09	B
D	50	A
E	15	D
F	12	C
G	12	C
H	12	E
I	12	E
J	08	F,G,H,I
K	09	None
