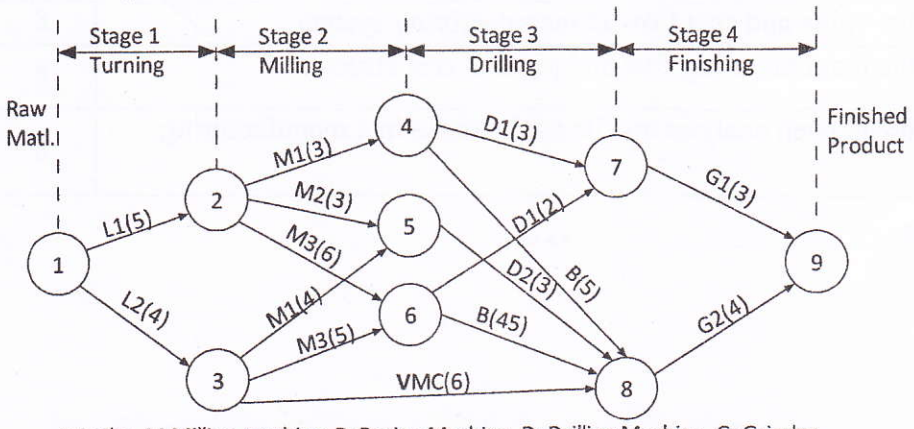
	Sanjay Ghodawat University, Kolhapur Established as State Private University under Govt. of Maharashtra. Act No XL, 2017	
FY M Tech	**School of Technology | Department of Mechanical Engineering**	
MDM 506	**Manufacturing System Design & Simulation**	**Sem-II**
25/5/18	**Examination: ESE, Max Marks: 100, Time 3 Hrs.**	

Instructions: 1) All Questions are compulsory.
10:30 AM to 1:30pm 2) Draw neat figures wherever necessary.
3) Simple graph papers can be used if necessary.

Q.1			Marks	CO
	a)	Discuss the Basic Attributes of a System and define abstract, structural, transformational and procedural systems. OR a) Explain the terms system boundary, wider system boundary and environment with respect to a system.	8	
	b)	Explain deductive design: work design module and approaches for large scale system design. OR b) Explain the rational decision making procedure with the help of a block diagram. What are the types of decisions?	8	
Q.2				
	a)	Discuss the process of Product Planning & Design. OR a) Explain Information Flow Between Components of a Control System.	8	
	b)	Find the optimum route for the network shown.  L: Lathe, M:Milling machine, B: Boring Machine, D: Drilling Machine, G: Grinder, VMC: Vertical machining center (Figures in parentheses are processing times.)	10	

Q.3		Answer any two.		
	a)	What is the Integrated Computer Aided Manufacturing Definition (IDEF)? Explain an $IDEF_0$ function block and the the $IDEF_0$ function levels.	8	CO
	b)	For a Single Stage Manufacturing system, derive unit production time and production rate.	8	CO
	c)	Discuss the shop floor data collection systems.	8	CO
Q4		Answer any two.		
	a)	Explain with the help of a flow chart construction of simulation models.	8	
	b)	Discuss different types of simulation model.	8	
	c) c)	Discuss the activities of 'analysis of situation' in the general design framework of a manufacturing system. OR Discuss the activities of 'setting objectives and evaluation and decision 'in the general design framework of a manufacturing system.	8	
Q5		Answer any two.		
	a)	Explain how a system's performance measures (i) cycle time and (ii) Work-In-Process (WIP) inventory can be estimated from the arrival and departure streams of the system.	8	
	b)	Discuss how process time variability affects the performance of the factory model.	8	
	c)	How are the workstation performance measures estimated in a multiple product factory model?	8	
Q6		Answer any two.		
	a)	Explain the value and cost flow in manufacturing system.	8	
	b)	Discuss the manufacturing cost and product cost structure.	8	
	c)	Explain break even analysis and its applications in a manufacturing system.	8	

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