Name: **Enrolment No:**	

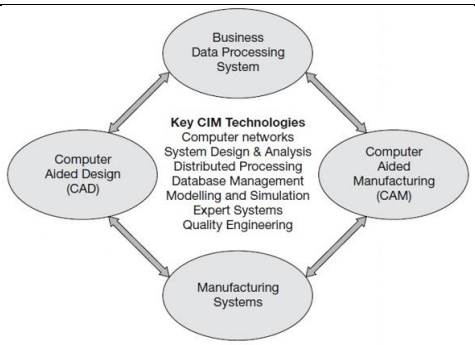
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2023

Course: Semester: II
Program: M.Tech. Automation & Robotics Engineering **Time : 03 hrs.**
Course Code: Design for Manufacturing (ECEG7029) **Max. Marks: 100**

Instructions: All the questions are compulsory and assume any missing data.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Draw the data flow chart in CIM.	**4**	**CO**
Q 2	Differentiate between CAD and CADD.	**4**	**CO2**
Q 3	List out all the computer added technologies in the manufacturing process.	**4**	**CO1**
Q 4	Describe the specific applications of micromotion study.	**4**	**CO4**
Q 5	List out all the various phases of product engineering.	**4**	**CO2**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	Define motion study and method study, and bring out the relationship between them. Discuss the role of method engineering in raising the industrial productivity?	**10**	**CO4**
Q 7	Discuss the various categories of manufacturing system.	**10**	**CO1**
Q 8	Discuss the various types of flexible manufacturing system. **OR** Discuss the each stage of design process.	**10**	**CO3**
Q 9	Discuss the various elements of Manufacturing Support Systems.	**10**	**CO1**
	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	Justify the network shown below by using the example of an automotive manufacturing industry. Also discuss the functioning of each element in detail.	**20**	**CO1**

	 OR Discuss and plot the product cycle in Computerized Manufacturing environment.		
Q 11	Prepare a material type proces flow chart for the following activity.	**20**	**CO4**

DISTANCE (m)	ACTIVITY	TYPE OF ACTIVITY
	In old-engine stores	
	Picked up engine by crane (electric)	*Non-productive*
	Transported to next crane	,,
24	*Unloaded to floor*	,,
	Picked up by second crane (electric)	,,
	Transported to stripping bay	,,
30	*Unloaded to floor*	,,
	Engine stripped	*Productive*
	Main components cleaned and laid out	,,
	Components inspected for wear; inspection report written	*Non-productive*
3	*Parts carried to degreasing basket*	,,
	Loaded for degreasing by hand-operated crane	,,
1.5	*Transported to degreaser*	,,
	Unloaded into degreaser	,,
	Degreased	*Productive*
	Lifted out of degreaser by crane	*Non-productive*
6	*Transported away from degreaser*	,,
	Unloaded to ground	,,
	To cool	,,
12	*Transported to cleaning benches*	,,
	All parts completely cleaned	*Productive*
9	*All cleaned parts placed in one box*	*Non-productive*
	Awaiting transport	,,
	All parts except cylinder block and heads loaded on trolley	,,
76	*Transported to engine inspection section*	,,
	Parts unloaded and arranged on inspection table	,,
	Cylinder block and head loaded on trolley	,,
76	*Transported to engine inspection section*	,,
	Unloaded on ground	,,
237.5	*Stored temporarily awaiting inspection*	,,