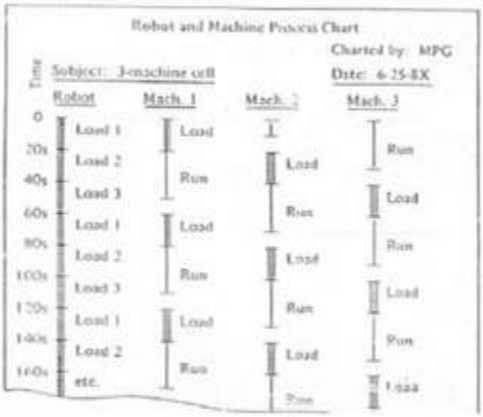
	ZEAL EDUCATION SOCIETY'S **ZEAL COLLEGE OF ENGINEERING AND RESEARCH** **NARHE | PUNE -41 | INDIA**	
Record No.: **ZCOER-ACAD/R/16K**	Revision: **00**	Date:**01/04/2021**

Unit Test –VI

Department: Robotics & Automation **Semester: II** **Academic Year: 2023-2024**
Class and Div.: TE A **Date:15/04/2024**
Course: Robot Programming **Maximum Marks: 30**
Duration: 1 Hr

General Instructions (If any):

1. *Qu.1 or Qu.2 , Qu.3 or Qu.4, Qu.5 or Qu.6 and Qu.7 or Qu.8*
2. *Neat diagrams must be drawn whenever necessary.*
3. *Figures to the right indicate full marks.*
4. *Use of calculator is allowed.*
5. *Assume suitable data whenever necessary.*

Question No.		Question	Marks	CO	Blooms Level
Q1	A	A three machine cell robot is used to load and unload machine. Each of the three machines are identical with identical cycles of 50s. This type of cycle time is divided between the run time (30s) and service time(load/unload) by the robot (20s). The organization of cycle time is shown in the robot and machine process chart given below:  i. It can be seen that each machine has idle time during its cycle of 10s while, the robot is fully occupied throughout its work cycle. Find: ii. Total idle time of robot iii. Total cycle time of robot iv. Machine Interference	7	CO 5	Apply
	B	Define the concept of singularities. Explain various types of singularities that can occur in robots.			Understanding
OR					

Q2	A	Write a short not on ‘Multiple Robot and Machine Interfacing’.	07	CO 5	Understanding
	B	Define Virtual Robotics. Explain the various user interfaces in Robot Studios for various applications.	08	CO 5	Understanding
Q3	A	Explain in detail about ‘Robot cycle time analysis.’	08	CO 6	Understanding
	B	Explain the methods of detecting possible collision of robots and what are the features added to avoid it.	07	CO 6	Understanding
OR					
Q4	A	Write a short note on ‘Robot Economics’.	07	CO 5	Understanding
	B	Explain ‘the repeatability measurement of robot’.	08	CO 5	Understanding

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