Name: **Enrolment No:**	

UPES

End Semester Examination, May 2023

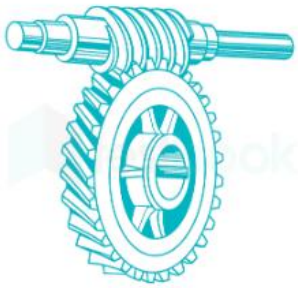
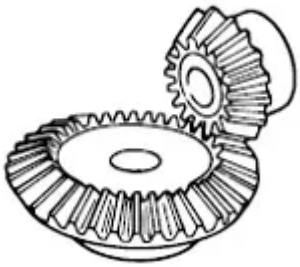
Course: B.Tech Mechanical engineering **Semester: II**

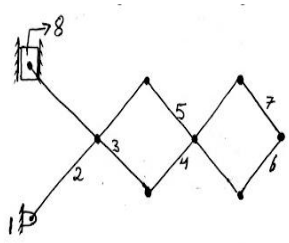
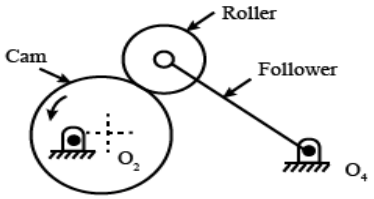
Program: Introduction to mechanical engineering **Time : 03 hrs.**

Course Code: MECH 1011 **Max. Marks: 100**

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Discuss the relevance of mechanical engineering in power industry.	**4**	**CO1**
Q 2	Identify the type of gears and enlist its 3 applications.  	**4**	**CO1**
Q 3	A person prefers to sit by a fire during the cold winter months. Which modes of heat transfer types gives him the most heat? Briefly explain the reason.	**4**	**CO2**
Q 4	Briefly describe the difference between mechanism and machine.	**4**	**CO1**
Q 5	Identify the machine and explain its significance and also the mechanical device involved. 	**4**	**CO2**

Q 6	With schematic diagram discuss the working of domestic refrigerator along with its capacity information. On which law of thermodynamics it is based on.	**10**	**CO3**
Q 7	Calculate degrees of freedom for given mechanism  	**10**	**CO3**
Q 8	Explain the working of a 2 stroke petrol engine .	**10**	**CO2**
Q 9	Classify Engineering Materials with suitable example of each category	**10**	**CO3**
	SECTION-C (2Qx20M=40 Marks)		
Q 10	(a) Compare the adavantage and disadvantage of hydraulic actuation and penumatic actuation in automation system. (b) Briefly describe the working of 3D printing machine along with a schematic diagram.	**20**	**CO3**
Q 11	"19th century Industrial Revolution: Mechanical Engineering developed as a dedicated field" Briefly comment on the above statement along with the suitable inventions and mechanical devices being used during that era. OR Discuss Top 10 Industry 4.0 Trends & Innovations in 2023.	**20**	**CO3/CO 2**