Course Code: 1940303 **Roll No:** **MLRS-R19**

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

II B.Tech II Sem Supply End Examination, July 2022

Basic Mechanical Engineering for Civil Engineers

(CIVIL)

Time: 3 Hours. **Max. Marks: 70**

Note: 1. Question paper consists: Part-A and Part-B.
2. In Part – A, answer all questions which carries 20 marks.
3. In Part – B, answer any one question from each unit.
Each question carries 10 marks and may have a, b as sub questions.

PART- A

(10*2 Marks = 20 Marks)

1.	a)	Explain the Cam and Follower Mechanism	2M	CO1	BL2
	b)	How do you evaluate the efficiency of a riveted joint	2M	CO1	BL2
	c)	What are various power transmission devices?	2M	CO2	BL1
	d)	What are the major functions of materials handling system?	2M	CO2	BL2
	e)	What are the advantages of internal combustion engine over external combustion engine?	2M	CO3	BL2
	f)	Explain term 'Dew point temperature'	2M	CO3	BL2
	g)	Name the fillers used in soldering	2M	CO4	BL1
	h)	State the advantages of Extrusion process	2M	CO4	BL2
	i)	Name different types of milling machine tools.	2M	CO5	BL1
	j)	What special tooling is associated with the turret lathe?	2M	CO5	BL3

PART- B

(10*5 Marks = 50 Marks)

2	a)	With neat sketch, explain the terminology used in reference to planar cam mechanism	5M	CO1	BL2
	b)	Explain the Time-Temperature-Transformation (TTT) Diagrams in heat treatment process	5M	CO1	BL2
		OR			
3		Explain with neat sketches the modes of failure of rivet joints	10M	CO1	BL2

4	a)	Classify the gears and mention their application	5M	CO2	BL2
	b)	An open flat belt drive is required to transmit 20 kW. The diameter of one of the pulleys is 150 cm having speed equal to 300 rpm. The minimum angle of contact may be taken as 170^{o} . The permissible stress in the belt may be taken as 300 N/cm^2 . The coefficient of friction between belt and pulley surface is 0.3. Determine the width of the belt neglecting effect of centrifugal tension for belt thickness equal to 8 mm.	5M	CO2	BL3
		OR			
5		Explain the types and functionality of material handling equipment with neat illustrations.	10M	CO2	BL2
6	a)	Sketch the IC engine naming its components and their functionality	5M	CO3	BL2
	b)	Represent Carnot cycle on p-V and T-S diagram	5M	CO3	BL3
		OR			
7		Explain the phenomena that involve conductive, convective, and radiative heat transfer	10M	CO3	BL2
8	a)	Explain the process of extrusion with the help of a sketch	5M	CO4	BL2
	b)	What is the principle of centrifugal casting process? What types of materials are most suitable and why?	5M	CO4	BL2
		OR			
9		Explain Projection and Percussion welding processes with neat sketches	10M	CO4	BL2
10	a)	Sketch and describe a Universal milling machine.	5M	CO5	BL2
	b)	What is the cutting tool used for performing the grinding operation? On what factors the cutting tool selection is made in the case of grinding?	5M	CO5	BL3
		OR			
11		Explain with a neat sketch the working principle of a lathe?	10M	CO5	BL2

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