Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY

MASTER OF ENGINEERING - SEMESTER - I EXAMINATION - WINTER 2025

Subject Code: ME01025021 **Date: 24-12-2025**

Subject Name: Fabric Manufacturing for Technical Textiles

Time: 10:30 AM TO 01:00 PM **Total Marks: 70**

Instructions

1. Attempt all questions.

2. Make suitable assumptions wherever necessary.

3. Figures to the right indicate full marks.

			Marks
Q.1	**(a)**	Compare 2D weaving with 3D weaving. Give classification of 3D fabric.	**07**
	(b)	Write a note on yarn quality parameters to be changed for high-speed weaving.	**07**
Q.2	**(a)**	What type of fabric is woven on air jet weaving machine. Explains blowing sequence of relay nozzles and lining control.	**07**
	(b)	Define nonwoven composite & give its classification. Explain any one method to produce nonwoven composite.	**07**
		OR	
	(b)	With sketch explain importance of sizing-weaving curve. Write in detail on quality improvement features of modern sizing machines.	**07**
Q.3	**(a)**	Draw cross section view of five pick layer - 3D woven orthogonal fabric and give its drafting and lifting plan.	**07**
	(b)	Explain working principle and major characteristics of M8300 multiphase weaving machine.	**07**
		OR	
	(a)	Draw cross section view of four pick layer - 3D woven angle interlock fabric and give its drafting and lifting plan.	**07**
	(b)	Draw structure of spacer fabric. Explain Rachel knitting machine to produce spacer fabric.	**07**
Q.4	**(a)**	Draw block diagram of circular weaving machine and Explain working principle and features said machine.	**07**
	(b)	What do you mean by Narrow Fabric Weaving? With the help of neat diagrams. explain the weft insertion mechanism of narrow fabric weaving.	**07**
		OR	
	(a)	Define the term-Braiding? Write on methods of interlacement and types braiding machine with suitable diagram.	**07**
	(b)	Discuss in detail about Maliwatt stitch bonding method with diagram.	**07**
Q.5	**(a)**	Explain different way to produce 3D braided structure. Also discuss about triaxial braid.	**07**

(b) Explain electrospinning technique for production of nanofibres with suitable diagram **07**

OR

(a) Distinguish between Gauze and leno structure. With the help of diagram, explain the principle of manufacturing of leno fabrics. **07**

(b) Write short note on weaving of glass fabric. **07**

***