

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-V EXAMINATION – WINTER 2025****Subject Code:3152909****Date:27-11-2025****Subject Name: Fabric Formation III****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.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Give classification of rapier looms. **03**
(b) Explain different types of weft accumulators used in shuttleless looms. **04**
(c) Describe important features and advantages of projectile weaving machines. **07**

- Q.2** (a) Give the brief classification of nonwoven. **03**
(b) Compare thermal and mechanical bonding techniques of nonwoven. **04**
(c) Explain the water-jet pump of water-jet loom. **07**

OR

- (c) Explain melt blown process in detail with the help of a neat diagram. **07**
- Q.3** (a) Water & air jet are not competitor but complementary to each other. Justify. **03**
(b) What are the different types of projectiles? Explain briefly. **04**
(c) Explain the Cam beat up mechanism of Sulzer projectile loom in detail with a neat sketch. **07**

OR

- Q.3** (a) What are the pre-requisite of water jet loom? **03**
(b) State merits and demerits of water-jet weaving machine. **04**
(c) Discuss the sequence of weft insertion in water jet loom and timing diagram. **07**

- Q.4** (a) State importance of the relay-jet system on air-jet looms. **03**
(b) Explain the confusor system on air-jet loom. **04**
(c) Explain the method of weft insertion of flexible double rapier tip transfer type of loom with diagram. **07**

OR

- Q.4** (a) State use of nonwoven fabric in field of automotive and medical textile. **03**
(b) Explain spun bonding method with neat sketch. **04**
(c) Describe the working principle of needle punching machine with the help of a neat diagram. **07**

- Q.5** (a) What do you mean by 3D and 2D fabric? How to developed 3D fabric. **03**
(b) What is leno weaving? How leno weaving is different from normal weaving process? **04**
(c) What is braiding? Explain working principle of circular braiding machine with suitable diagram. **07**

OR

- Q.5** (a) What is narrow weaving? State various application of it. **03**
(b) Explain various applications of 3D woven fabric with example. **04**
(c) Explain working principle of circular weaving with suitable diagram. **07**
