

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2021****Subject Code:3152911****Date:07/09/2021****Subject Name:Theory of Textile Machines****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) Classify gears based on the position of teeth on wheel. **03**
 (b) State the relative advantages and disadvantages of chain and belt drives. **04**
 (c) What are the different modes of transmitting power from one shaft to another? Compare them. **07**

- Q.2** (a) Why idler pulleys are used in belt drive? **03**
 (b) Describe the construction of Epicyclical gear train **04**
 (c) Explain various types of belt drives used in textile industry with neat sketch. **07**

OR

- (c) Explain different types of gears used in textile industry with neat sketch. **07**

- Q.3** (a) State any two applications of each - epicyclical and Reverted gear train. **03**
 (b) Differentiate between Simple and Compound Gear Train. **04**
 (c) How to calculate velocity ratio of compound and reverted gear train? Explain with suitable diagram. **07**

OR

- Q.3** (a) List different types of cam. Also State the applications of Cam. **03**
 (b) Describe the construction of spherical faced follower. **04**
 (c) What is a cam? Discuss the various types of motion that can be transmitted with a cam and follower combination. **07**

- Q.4** (a) List different types of clutches and its two applications. **03**
 (b) State different type of brake and clutch. What is difference between brakes and clutch? **04**
 (c) Described the working of a band and block brake with help of neat sketch. Deduce the relation for ration of tight and slack side tensions. **07**

OR

- Q.4** (a) Define: linear displacement, angular displacement and speed. **03**
 (b) What is acceleration and retardation? Explain sley beat up mechanism. **04**
 (c) What are the advantages possessed by ball and roller bearings over plain bearings? Sketch and described one type of roller bearing. **07**

- Q.5** (a) What is friction? Is it a blessing or curse? Justify your answer giving examples. **03**
 (b) Explain the static and dynamic friction in brief. **04**
 (c) Explain differential gearing mechanism of roving frame with suitable diagram. **07**

OR

- Q.5** (a) What is centre of gravity? State it's important. **03**
(b) Give the definitions and units of force, momentum, work and power. **04**
(c) Explain kinematic of sley with suitable diagram. **07**
