Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2014

Subject Code: 162903 **Date: 23-05-2014**

Subject Name: Physical Testing

Time: 10:30 am - 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.**

Q.1	**(a)**	With sketches explain various ways in which samples from fabric are to be taken for testing.	**05**
	(b)	Explain in detail comb sorter technique for fiber length measurement. How effective length is determined?	**09**
Q.2	**(a)**	What is fibrograph and how it is analysed? What do following terms mean? (i) Span Length (ii) UR% (iii) UI% (iv) Floating fiber %	**07**
	(b)	Establish relationship between fiber fineness and maturity. Discuss the principle of fineness measurement by air flow method.	**07**
		OR	
	(b)	Explain the principle of fiber fineness measurement by Vibroscope. Modify the equation incorporating young's modulus.	**07**
Q.3	**(a)**	Derive mathematically the concept of twist factor for direct system. Explain twist to break method for twist measurement.	**07**
	(b)	With sketch explain beesley's instrument for count measurement from fabric sample.	**07**
		OR	
Q.3	**(a)**	With neat sketch explain fabric stiffness measurement by cantilever principle. How bending length, flexural rigidity and bending modulus are derived?	**07**
	(b)	Write a short note on crease recovery test.	**07**
Q.4	**(a)**	Discuss mathematically the effect of following on tensile strength test: (i) Test specimen length (ii) rate of loading & time to break	**07**
	(b)	Write briefly on any one fiber strength tester based on balance principle.	**07**
		OR	
Q.4	**(a)**	Write in short on following terms: (i) Short, medium and long term irregularities (ii) Index of irregularity (iii) Limit irregularity	**06**
	(b)	What is called V-L curve? Write in short on the same.	**08**
Q.5	**(a)**	Write in detail on high speed tensile strength testing instrument.	**08**
	(b)	Explain only the principle of transducer based strain gauge instrument for CRE tester.	**06**
		OR	
Q.5	**(a)**	What is meant by addition of irregularity and effect of doubling? Calculate drawn sliver CV% on a draw frame from following data. Undrawn Sliver CV%: 2.2, Draw Frame CV% : 3.9	**06**
	(b)	Write features of any one modern electronic evenness measurement instrument.	**08**

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