Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – V (NEW) EXAMINATION – WINTER 2015

Subject Code: 2152807 **Date:10/12/ 2015**

Subject Name: Processing & Applications Of Non Conventional Fibres

Time:10:30am to 1:00pm **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)	Describe in detail the properties and applications of carbon fibres.	07
	(b)	Write the recent developments in textile fibres.	07
Q.2	(a)	This fibre is made from Type E and Type C borosilicates. It is used as insulation material. Give other end uses and applications of this fibre.	07
	(b)	Benzene and ethylene react to give a vinyl based monomer which is used in making plastics and fibres. Write properties and uses of this fibre.	07
		OR	
	(b)	This fibre is available as water soluble and water insoluble types. Write the manufacture of this fibre (including spinning) and describe the process of insolubilisation.	07
Q.3	(a)	Tencell/Lyocell is a regenerated cellulosic fibre; give the manufacture of this fibre and also a brief description its eco-friendly nature.	07
	(b)	What are Aramid fibres? Give production, properties and uses of Aramid fibres (Nomex and Kevlar).	07
		OR	
Q.3	(a)	Which type of fibre is casein? Describe the synthesis and uses of casein.	07
	(b)	What is Nylon 6T? Write its chemical structure and properties based on this.	07
Q.4	(a)	Give structure and properties of Abaca fibre.	07
	(b)	This fibre occurs as a natural mineral in fibrous crystalline form. It is obtained from minerals such as Anthophyllite, Amphibole and Serpentine. Describe the manufacture of this fibre and write its end uses.	07
		OR	
Q.4	(a)	Give the structure, properties and uses of (i) Kenaf (ii) Sisal.	07
	(b)	In which different forms are Aluminum Silicate fibres available? Describe the production of Aluminum Silicate fibres and write its end uses.	07
Q.5	(a)	Classify the following fibres as Leaf fibre, Bast fibre, Regenerated Protein fibre, Inorganic fibre, Vinyl fibre and Synthetic Polyamide fibre: (1) Manila (2) Agave (3) Lyocell (4) Soya bean (5) Alginate (6) Kevlar (7) Carbon fibres (8) Polystyrene fibres (9) Sunn (10) Casein (11) Nylon 11 (12) Aluminum Silicate (13) Polyvinyl alcohol (14) Chitin and Chitisan.	07
	(b)	What is the source of Alginate fibres? How are they produced? Give the uses of Alginate fibres based on its solubility properties.	07
		OR	
Q.5	(a)	Match 'A' and 'B':	07

A	B
(1)Fibre used as insulation material	Carbon
(2)Water soluble fibre	Kevlar, Nomex
(3)Alkali soluble fibre	Nylon 6T

(4)Aramid fibre	Glass
(5)Combines properties of Nylon and polyester	Polyvinyl Alcohol
(6)Inert and heat resistant	Kenaf
(7)Used in making ropes, twines and coarse fabrics	Alginate

(b) Write production and properties of groundnut protein fibres. 07

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