Register Number:……..

KUMARAGURU
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GENERAL INSTRUCTIONS TO THE CANDIDATES

1. Candidates are instructed to answer the questions as per Bloom's Taxonomy knowledge level (K_1 to K_6)
2. Candidates are strictly instructed not to write anything in the question paper other than their roll number.
3. Candidates should search their pockets, desks and benches and handover to the Hall Superintendent/ Invigilator if any paper, book or note which they may find therein as soon as they enter the examination hall.
4. Candidates are not permitted to bring electronic watches with memory, laptop computers, personal systems, walkie-talkie sets, paging devices, mobile phones, cameras, recording systems or any other gadget / device /object that would be of unfair assistance to him / her.
5. Corrective measures as per KCT examination policies will be imposed for malpractice in the hall like copying from any papers, books or notes and attempting to elicit the answer from neighbours.

B.TECH DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2014)

Second Semester.

TEXTILE TECHNOLOGY

U14TXT201: Textile Fibres

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The fibre which has a mineral origin is [K_2]

   a) Silk b) Flax

   c) Acrylic d) Asbestos

2. The increasing order of melting point of following fibres is [K_3]

   1. Polyester(PET)
   2. Polypropylene(PP)
   3. Polyacrylonitrile(PAN)

4. Nylon 6
5. Low Density Poly Ethylene(LDPE)

a) 5,3,2,1,4 b) 2,5,4,1,3

c) 5,2,4,1,3 d) 3,1,4,2,5

3. Consider the following **Assertion [a]** and R**eason [r]** [K_3]

[a] The wool fibre has very good elastic recovery and excellent resilience compared to other natural fibres.

[r]The wool fibre has crimped configuration and also the alpha-keratin configuration of wool polymer.

Determine the correctness or otherwise of the above **Assertion [a]** and **Reason [r]**

a) **[a**] is right **[r]** is wrong b) **[a]** is right **[r]** is right

c) **[a**] is wrong **[r]** is right d) **[a]** is wrong **[r]** is wrong

4. Consider the following statements [K_3]

1. The very absorbent nature of wool is due to polarity of the peptide groups, the salt linkages and amorphous nature of polymer system.
2. The polymer system of polyester is 85-95% crystalline.
3. The cotton is a multi-cellular fibre.
4. The modacrylic fibres must be composed of at least 35% but not more than 85% by weight of acrylonitrile units.

Which of these statements are correct?

a) 1,4 b) 1,2,4

c) 2,4 d) 3,4

5. Consider the following **Assertion [a]** and R**eason [r]** [K_4]

[a] In the case of manufactured fibre spinning, a circular spinneret orifice always results in circular cross-section of filaments in melt spinning, but the same is not true in dry spinning.

[r] Melt spinning involves only heat transfer, whereas dry spinning involves heat as well as mass transfer.

Determine the correctness or otherwise of the above **Assertion [a]** and **Reason [r]**

a) **[a**] is right **[r]** is wrong b) **[a]** is wrong **[r]** is wrong

c) **[a**] is wrong **[r]** is right d) **[a]** is right **[r]** is right

6. Match list I(Fibres) with list II(Applications)and select the correct answer using the codes given below [K_2]

List I	List II
A. Aramid	1. Elastic Bands
B. Polyurethane	2. Socks
C. Acetate	3. Bullet Proof materials
D. Nylon	4. Cigarette Filters

a) A-2,B-1, C-4, D-3 b) A-1,B-3, C-4, D-2

c) A-3,B-1, C-4, D-2 d) A-3,B-1, C-2, D-4

7. Consider the following statements [K_2]

1. The slenderness ratio of flax is about 15000:1

2. Casein fibre is generally extracted from corn gluten meal.

3. Triacetate fibre has six acetate groups in its cellobiose unit.

4. Viscose rayon commercially manufactured through dry spinning system.

Which of these statements are wrong?

a) 3,4 b) 2,3

c) 1,2,3 d) 2,3,4

8. Match list I(Polymers) with list II(Degree of Polymerization)and select the correct answer using the codes given below [K_1]

List I	List II
A. Cotton	1. 200
B. Nylon 6	2. 140
C. Polyester	3. 2000
D. Acrylic	4. 5000

a) A-4, B-1, C-2, D-3 b) A-1, B-4, C-2, D-3

c) A-4, B-1, C-3, D-2 d) A-4, B-2, C-1, D-3

9. The fibre that will float on water is [K_3]

a) Nylon b) Polyester

c) Acrylic d) Polypropylene

10. The decreasing order of specific gravity of following textile fibres is [K_3]

Carbon ; 2.Polyurethane; 3.Kevlar; 4. Polyvinyl Alcohol; 5. Glass; 6. Polyvinyl Chloride

a) 5, 2,3,6,4,1 b) 1, 5,6,3,4,2

c) 5,3,6,1,4,2 d) 5,1,3,6,4,2

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11.	Tell the influence of orientation of polymer on fibre characteristics.		[K_2]
12.	Differentiate through any two valid points between thermoplastic and thermo set polymers.		[K_4]
13.	Repeat the chemical constituents of cotton fibre.		[K_1]
14.	Interpret the statement, “Silk dresses are not laundered with detergents”		[K_2]
15.	Repeat the merits of man-made fibres (MMF).		[K_1]
16.	Tell any two features of modal fibres?		[K_2]
17.	Identify the reason for this statement, “Polyamide fibre are used as conveyor belts”		[K_4]
18.	Repeat the chemical formulae for PP and PE.		[K_1]
19.	Identify the PP & PE by solubility method?		[K_4]
20.	Relate with any two practical examples between thermal property of carbon fibre and its applications.		[K_3]

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

21.	(i)	Differentiate the chemical structure of wool and silk fibres using suitable chemical forms and molecular arrangements.	(8)	[K_4]
	(ii)	Draw the conclusions from the comparison of chemical constituents of jute and linen fibre.	(6)	[K_4]
22.	(i)	Discuss about the characteristics of fibre forming polymers with examples.	(7)	[K_2]
	(ii)	Debate on each essential property of fibre with valid examples.	(7)	[K_4]
23.	(i)	Review about the morphological and chemical structure of cotton with suitable microscopic diagrams and chemical forms respectively.	(10)	[K_2]
	(ii)	Give in own words about the chemical properties of cotton fibre.	(4)	[K_2]
24.		Relate any two basic production systems of manmade fibres with the commercial production Nylon and Viscose fibres using suitable diagrams and related chemicals.		[K_3]
25.	(i)	Distinguish between physical and chemical properties of Nylon 6 and Nylon 6,6	(8)	[K_4]
	(ii)	Relate critically the properties of polyester with its respective applications.	(6)	[K_3]
26.	(i)	Report on general properties of aramid and carbon fibres.	(8)	[K_2]
	(ii)	Identify any six textile fibres using solubility tests.	(6)	[K_4]

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