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25CDP101

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch – **COSTUME DESIGN AND FASHION**

TEXTILE FIBRE AND YARN SCIENCE

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which essential property of textile fibres enables them to be spun into yarn? a) Elasticity b) Spinnability c) Flexibility d) Strength	K1	CO1
	2	Clarify why bast fibres are coarse when compared to animal fibres: a) Due to lignin content b) Due to shorter length c) Due to crimp d) Due to protein base	K2	CO1
2	3	Which microscopy method provides a 3D surface image of fibres? a) Optical microscopy b) TEM c) FE-SEM d) NMR	K1	CO2
	4	Among fibre analysis methods, Thermogravimetric Analysis (TGA) is mainly used to a) Record fibre crystallinity b) Measure weight loss with temperature increase c) Determine elemental composition d) Identify fibre swelling rate	K2	CO2
3	5	The moisture regain of Tencel is approximately: a) 2–3% b) 5–6% c) 11–13% d) 20%	K1	CO3
	6	Which property makes Modal suitable for underwear and intimate wear? a) High thermal resistance b) Softness and high absorbency c) Low moisture regain d) High density	K2	CO3
4	7	Which high-performance fibre have very high tensile strength and is used in bulletproof vests? a) Nomex b) Kevlar c) Glass fibre d) Carbon fibre	K1	CO4
	8	A major limitation of carbon fibre is a) High weight b) High cost and brittleness c) Low thermal stability d) Low strength	K2	CO4
5	9	The first operation in a spinning mill is usually a) Carding b) Blow room c) Combing d) Ring spinning	K1	CO5
	10	The initial slope of a yarn stress-strain curve represents a) Ultimate strength b) Elastic modulus c) Yarn contraction d) Creep behavior	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Give a note on extraction process of jute fiber.	K2	CO1
		(OR)		
	11.b.	Review the properties of alpaca fibers.		
2	12.a.	Point out the differences between Optical Microscopy and FE-SEM in fibre surface analysis.	K4	CO2
		(OR)		
	12.b.	Explain the significance of Young's modulus in determining fibre stiffness.		
3	13.a.	Compare the composition and molecular structure of Tencel and Modal fibres.	K5	CO3
		(OR)		
	13.b.	Interpret the significance of the closed-loop process in Tencel manufacturing.		
4	14.a.	Compute the thermal resistance values of Kevlar and Nomex and compare their effectiveness in protective clothing.	K3	CO4
		(OR)		
	14.b.	Determine the structure and properties of chitin natural polymer.		
5	15.a.	Explain the traditional process of hand spinning and its significance in the development of Khadi.	K6	CO5
		(OR)		
	15.b.	Generalize the role of twist-less spinning in producing specialized yarn structures.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Elaborate on the morphological structure of man-made fibres.	K2	CO1
2	17	Analyze the different types of swelling and explain the factors that affect the selling.	K4	CO2
3	18	Explain the future role of regenerated fibres like Tencel and Modal in achieving sustainable fashion goals.	K5	CO3
4	19	Illustrate and explain the steps involved in the manufacturing process of aramid fibers.	K3	CO4
5	20	Summarize the essential features of the modern carding machine.	K6	CO5

Z-Z-Z END