Total No. of Printed Pages: 13

## (DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)

# Α

#### Ph.D-EE-December, 2024 Textile Engineering

SE	T-X
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10005

		Sr. No
Time: 11/4 Hours	Max. Marks : 100	Total Questions : 100
Roll No. (in figures)	(in words)	
Name	Date of Birth	
Father's Name	Mother's Name	
Date of Examination		
(Signature of the Candidate)		(Signature of the Invigilator)

#### CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

- 1. All questions are compulsory.
- 2. The candidates must return the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfairmeans / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
- 3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
- 4. Question Booklet along with answer key of all the A, B, C & D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the University Website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case, will be considered.
- 5. The candidate *must not* do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers *must not* be ticked in the question booklet.
- 6. There shall be negative marking. A deduction of 0.25 marks shall be there for each wrong answer. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
- 7. Use only Black or Blue Ball Point Pen of good quality in the OMR Answer-Sheet.
- 8. Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 minutes after starting of the examination.

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1.	which liber has the least density?	
	(1) Polyester (2) Cotton	(3) Viscose (4) Polypropylene
2.	Water is added to caprolactam during is that of a	ng the polymerization of Nylon 6. The primary role
	(1) Solvent (2) Catalyst	(3) Heat sink (4) Stabilizer
3.	As a result of tension annealing of the	nermoplastic fibers:
	(1) Crystaline orientation decreases	
	(2) Elongation break does not change	e Sonic modulus increases
	(3) Melting point decreases	:3. y -5 '
	(4) Sonic modulus increases	
4.	Polycondensation reaction typically	occurs due to the presence of:
	(1) One functional group	(2) Two functional groups
	(3) Low temperature	(4) Addition of a compound
5.	The technique used for producing vis	scose rayon is:
	(1) Melt spinning (2) Wet spinning	ng (3) Dry spinning (4) Dry-jet spinning
6.	Which of the following is a leaf fiber	eff " R <sub>a</sub> <sub>a</sub> it e it e
	(1) Sisal (2) Flax	(3) Ramie (4) Banana
7.	High elastic recovery of wool is pred	lominately a result of:
	(1) Crystaline linkages	(2) Deformation of amorphous regions
	(3) Percent crystalline	(4) $\alpha$ - $\beta$ transformation
8.	The breaking extension of flax, cotton, jute and wool at standard testing atmosphere in the decreasing order is:	
	(1) Wool > Jute > Cotton > Flax	(2) Wool > Cotton > Jute > Flax
	(3) Wool > Jute > Flax > Cotton	(4) Wool > Cotton > Flax > Jute
9.	Shrinkage of cotton fabric during we	tting is caused by:
	(1) Extension of fiber	(2) Crimping of fiber
	(3) Swelling of fiber	(4) Compression of fiber
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10.	Which of the following amino acids are responsible for relatively higher wet stre of the wool fiber?	
	(1) Sericin (2) Cystine (3) Tyrosine (4) Threonine	
11.	The fiber that contains nitrogen and sulfur is:	
	(1) Kevlar (2) Nylon 6 (3) Wool (4) Polyester	
12.	During crystallization of polyester:	
	(1) Heat evolved	
	(2) Heat is absorbed	
	(3) No exchange of heat	
	(4) Small molecules such as water is climinated	
13.	Which of the following is liquid crystal spun fibre?	
	(1) Kevlar (2) Polyester (3) Nylon (4) Glass	
14.	The structure of the Carbon fibre is:	
	(1) Turbostratic structure (2) Graphitic structure	
	(3) Honey-comb structure (4) Flexible structure	
15.	The optical birefringence of glass fibre is:	
	(1) Zero (2) Negative (3) Positive (4) Infinity	
16.	Glass transition temperature is called:	
	(1) First order transition temperature (2) Second order transition temperature	
	(3) Third order transition temperature (4) Fourth order transition temperature	
17.	Which of the fibres - Nomex, Kevlar, PBO (Polybenzoxazole), Spectra - has highest LOI value?	
	(1) Nomex (2) Kevlar (3) PBO (4) Spectra	
18.	In melt spinning of polyethylene terephthalate, pre drying of polymer chips is essential to avoid:	
	(1) Oxidative degradation (2) Thermal degradation	
	(3) Hydrolytic degradation (4) Higher production	

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19.	The cross-section of a spinneret used for the production of hollow fiber is:			
	(1) Rectangular		(2) Triangular	
	(3) Annular concen	tric	(4) C-shaped	
20.	Acrylic fiber has hig	gh glass transition te	mperature primarily	due to:
	(1) Presence of bull	ky side groups	(2) Presence of pol	ar side groups
	(3) Main chain stiff	ness	(4) High crystallin	ity
21.	Forward as well as a	reverse rotary motion	n in cotton combing i	s given to:
	(1) Feed roller		(2) Cylinder comb	
	(3) Detaching rolle	r	(4) Drawing rollers	s in comber draw box
22.	feed, given that the	rcentage (according detaching roller set the longest fiber leng	tting is 15 mm, the l	for a comber with forward ength of feed per combing
	(1) 49	(2) 30	(3) 16	(4) 9
23.	Drawing and doubl	ing operations on dra	aw-frame are mainly	used to:
	(1) Improve short-	and medium-term va	riation in silver	
	(2) Improve long te	rm variation in slive	r	
	(3) Improve sliver s	strength		
	(4) Make the sliver	finer		
24.	What would be the CV of the resultant sliver if eight ends of slivers, each having a CV of 6%, are doubled and drawn to produce a sliver of the same hank, and the draw frame introduces an additional 2.12% CV?			
	(1) 12	(2) 9	(3) 6	(4) 3
25.		inimum angle of lea in diameter in mm is		a ring of 40 mm diameter,
	(1) 15	(2) 18	(3) 20	(4) 22
26.	The increase in trav	eler weight leads to	an increase in:	
	(1) Yarn Tension	(2) Yarn Twist	(3) Traveler Lag	(4) Balloon Diameter
27.	Softer cots on draft	ing rollers results in	<b>:</b> -	
	(1) An increase dra	afting wave	(2) Less fiber slipp	page at roller nip
	(3) Change in draf	t	(4) Reduced roller	lapping
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28.	ring frame is	speed (difference betw 200 rpm when the bo 5 mm, the winding sp	obbin diameter is 2	ed and traveler speed) of yarn 8 mm. If the bobbin diameter	in is
	(1) 200	(2) 180	(3) 160	(4) 140	
29.	The maximum	n yarn tension in ring	frame is typically o	bserved at:	
	(1) Between t	he lappet guide and fr	ont roller	2 13.5	
	(2) Where the	ballon radius is the n	naximum		
	(3) In the win	ding zone			
	(4) Just below	the lappet guide		i nje koj stilaji	
30.	For a given ya	rn fineness, use of lig	ht ring traveler give	s: 1	
	(1) Small ballon size but more yarn content on the bobbin				
	(2) Small ball	on size but less yarn c	content on the bobbi	n (	
		size but more yarn co			
	(4) Big ballon	size but less yarn cor	itent on the bobbin		
31.	The rotor spur same fibers. The		formity than the rin	g spun yarn of same count an	d
	(1) The high p	production rate of roto	r spinning system		
	(2) The fiber of	doubling occurs inside	the rotor		
	(3) The preser	ice of wrapper fibers i	n rotor spun yarns		
	(4) Twisting a	nd winding is taken p	lace in rotor spinnin	g	
32.	In case of a bol	bbin leading roving fr	ame :		
	(1) Spindle rpm remains constant				
	(2) Bobbin rpm remains constant				
	(3) Both spindle and bobbin rpm vary				
	(4) Both spind	(4) Both spindle and bobbin rpm remain constant			
33.	The length and The tooth densi	l breadth of working ity is 260 per inch <sup>2</sup> . The	area of a flat is 10 he number of teeth of	0 cm and 25 mm respectively on a flat is close to:	•
	(1) 100750	(2) 8569	(3) 10075	(4) 7690	
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34.	Compared to the spinning of finer cotton yarns, the preferred rotor diameter for the roduction of very coarse cotton yarns would be:			red rotor diameter for the
	(1) Higher		(2) Lower	
	(3) No change		(4) Changes as per	fiber strength
35.				ir pressure at rear nozzle. The relationship between
	(1) P1>P2	(2) P1 <p2< th=""><th>(3) <math>P1 = P2</math></th><th>(4) P1≥P2</th></p2<>	(3) $P1 = P2$	(4) P1≥P2
<b>36.</b>	The direct twist factorist per unit length cotton yarn will be	h the same, the indire	tex P/V yarn is 38	28 tpcm X tex <sup>1/2</sup> . To keep iplier (tpi / Ne <sup>1/2</sup> ) of 30 Ne
	(1) 2.95	(2) 3.27	(3) 2.27	(4) 3.83
37.	With an increase of	draft, the drafting fo	orce:	
	(1) Increases		(2) Decreases	
	(3) Decreases and t	hen level off	(4) Increases and the	nen decreases
38.	The length of 20 Te	ex cotton yarn in kilo	meter on a 2 kg cone	will be:
	(1) 50	(2) 100	(3) 150	(4) 200
39.	The following has	the highest index of i	rregularity:	9
	(1) Carded sliver	(2) Roving	(3) Yarn	(4) Drawn sliver
40.	In a friction spinning, the diameter of the perforated drum and the average yarn tail diameter resting on the drum are 40 mm and 0.18 mm respectively. The drum and yarr delivery speed are 400 rpm and 250m/min respectively. If the slippage of the drum is 80% then the false twist per meter produced in the yarn at the friction drum is:			ctively. The drum and yarn the slippage of the drum is
	(1) 650	(2) 711	(3) 750	(4) 780
41.	. What is the time, in minutes, required to produce a 1.5 kg cone on a winding machine operating at a winding speed of 1000 m/min with 90% efficiency, given that the yarn has a linear density of 12 tex?			
	(1) 131.7	(2) 138.8	(3) 143.2	(4) 147.5
42.	Which of the follo	THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TW	es change with pacl	kage build-up in case of a
	(1) Winding speed	(2) Coil Angle	(3) Wind angle	(4) Traverse ratio
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43.	With time, the wind per double traverse in a drum-driven winder:		
	(1) Increases	(2) Decreases	
	(3) Don't change	(4) First increases then decreases	
44.	Increase in the taper angle on a sectiona	l warping machine will require :	
	(1) Increase in the traverse speed		
	(3) No change in the traverse speed	(4) Increase in the winding speed	
45.	Ball warping is mostly preferred for :		
	(1) Terry towel (2) Narrow fabric	(3) Denim (4) Poplin	
46.	100 kg oven dry warp sized to a size a	add on of 8% and dried to an overall moistur	
	content of 10% would finally weight (ap	Troumans):	
	(1) 108 (2) 120	(3) 162 (4) 226	
47.	Size add on does not depend upon:		
	(1) Roller hardness	(2) Drying cylinder temperature	
	(3) Size paste concentration	(4) Machine speed	
43.	Limitations to the west insertion rate of	a plain shande loom is imposed by:	
	(1) The loom eccentricity	(2) The picking and checking system	
	(3) The width of the loom	(4) The mass of the sley	
49.	For a two fold increase in reed width, th	e picking power of a shunle loom will increase	
	ph.:	200	
	(1) 2 times (2) 4 times	(3) 8 times (4) 16 times	
50.	If the diameter of a torsion rod used i	in projectile from is doubled then the torque	
	referrer to swite weart measure but :		
~	(1) 2 times (2) 4 times	(3) 8 times (4) 16 times	
3L	In an air-jes keem:		
	<ol> <li>All the relay notates start jening at t</li> </ol>		
	<ol> <li>Each relay novale has separate jetting</li> </ol>	g dime	
	(3) Reitry numbers of a group start jenting	at the same time	
	(4) Main and relay notates have the same jetting time		

52.	In a projectile loom, the projectile travels 250 cm at an average velocity of 25 m/s. the west insertion angle is 180 degrees, the maximum loom speed in picks per minutis:			erage velocity of 25 m/s. If a speed in picks per minute
	(1) 300	(2) 320	(3) 340	(4) 360
53.	A perpendicular la	id non-woven:		
	(1) Should not con	tain thermoplastic fi	ber	
	(2) Does not form	a 3-D structure		
	(3) Can't be used a	is replacement foam		
	(4) Exhibits high i	ecovery from compr	ession	
54.	The non-woven pro	ocess which has the l	nighest production ra	te is:
	(1) Needle punchi	ng	(2) Hydroentangli	ng
	(3) Melt blowing		(4) Spun bonding	16a - 1
55.			stant for a knitted shape factor is appro	fabrics are 4.2 and 5.46 ximately:
	(1) 1.3	(2) 0.77	(3) 22.93	(4) 9.66
56.	The peak of the we	eaving tension is obsect (2) Picking	erved during: (3) Beat-up	(4) Let-off
57.	•		ric specimen of 1 m crimp percentage (in	× 1 m size. If the length of integer) is:
	(1) 5	(2) 10	(3) 20	(4) 24
58.		uare fabric in which will be (nearest intege		equal to the yarn diameter
	(1) 36%	(2) 46%	(3) 56%	(4) 65%
59.	If the warp and we	ft fractional cover ar	e each 0.5, then the f	abric fractional cover is:
	(1) 0.55	(2) 0.65	(3) 0.75	(4) 0.85
60.	A shuttle loom is shaft in degrees/se		s per minute. The an	gular velocity of the crank
	(1) 1000	(2) 1080	(3) 1160	(4) 1240
61.	If the diameter of a	fiber is d, its flexura	al rigidity is proportion	onal to :
	(1) d	(2) $d^2$	(3) $d^4$	(4) d8
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62.	Which one of the fo	llowing fiber proper	rties corelates the bes	st with handle of fabric:	
	(1) Initial modulus		(2) Yield stress		
	(3) Tenacity at break		(4) Elongation at b	oreak	
63.	In stelometer, if F is the pendulum is mo			is the angle through which	
	(1) $\sin \theta$	(2) Cos θ	(3) Tan θ	(4) Cot θ	
64.	The vibroscope me account.	ethod for the deter	mination of fiber fi	neness does not take into	
	(1) Length of specia	men			
	(2) Natural frequen	cy of specimen			
	(3) Tension in spec	imen			
	(4) Tensile strength	of specimen			
65.	The breaking streng 1.24g/cm <sup>3</sup> , approximately	gth load of a 300 mt mate breaking stress	ex fiber is 110 mN. I in kN/cm <sup>2</sup> is :	f the density of the fiber is	
	(1) 45.4	(2) 44.4	(3) 43.4	(4) 40.4	
66.	The tensile testers w	vith strain gauge tran	nsducer rely on :	-a - 1	
	(1) Constant Rate of Traverse principle				
	(2) Constant Rate of Loading principle				
	(3) Constant Rate of	of Extension principl	e		
	(4) Pendulum lever	principle			
67.	Hairiness module of	f Uster hairiness test	er works on:		
	(1) Impedance prin		(2) Electrical resist	_	
	(3) Capacitance pri	•	(4) Light scattering	• •	
68.		g princlple, bending	length equals overha	anging length (in degrees):	
	(1) When $\theta = 7.1$		(2) When $\theta = 20.2$		
	(3) When $\theta = 30.3$		(4) When $\theta = 40.4$	, VV.	
69.	Creep of a fibre is n	neasured under:			
	(1) Constant load	grij agrija	(2) Constant stretch	h	
	(3) Constant load a	nd stretch	(4) Variable load		
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70.	. Based on the analysis of a triangular comb sorter diagram, if 30% of fibers can be regarded as short fibers, then the percentage of fibers by weight which should be removed at comber to obtain yarn free of short fiber is:			
	(1) 9	(2) 10	(3) 18	(4) 30
71.	In textile testing for	or a certain property	the sample size is pr	oportional to:
	$(1) CV^2$		(2) CV	and the second
	(3) $CV^{0.5}$		$(4) CV^3$	
72.	In the case of cott	on, AFIS can be used	to measure:	
	(1) Convolutions	per unit length	(2) Maturity	
	(3) Strength		(4) Elongation	
73.	The thinnest class	simat fault among the	followings is:	
	(1) D4	(2) E	(3) F	(4) 12
74.	The value of brea	king length in km (RI	KM) of a yarn is nun	nerically equal to:
	(1) Tenacity in N	//tex	(2) Breaking load	l in Note that the second second
	(3) Tenacity in gr	f/tex	(4) Breaking load	l in gf
75.	The drape of a fabric is influenced by the most by:			
	(1) Bending rigidity		(2) Elongation at	break
	(3) Tensile streng		(4) Bursting stren	ngth
76.	The shear charact	eristics of a fabric is a		
	(1) KES-FB3	(2) FAST-3	(3) KES-FB2	(4) FAST-2
77.	The areal density direction is 3cm, t	of a woven fabric is then its flexural rigidi	150 gm/m <sup>2</sup> and the ty in gm.cm is:	bending length in the warp
	(1) 0.405	(2) 4.050	(3) 4.500	(4) 4500.0
78.	Pilling propensity	on fabric surface inc	reased with:	g 1980 - 경기 (1981 - 1981 - 1981 - 1981 - 1981 - 1981 - 1981 - 1981 - 1981 - 1981 - 1981 - 1981 - 1981 - 1981 -
	(1) Increase in length of fiber used in the		he yarn	
	(2) Increase in ya	ırn twist		<u>a</u>
	(3) Decrease in ir			
	(4) Decrease in fi			Auto 11 117
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79.	. The abrasion cycles on a flat abrasion tester increase with an increase in :			
	(1) Pressure applied during abrasic	n (2) Speed of abrasion		
	(3) Area of abraded surface	(4) Specimen tension during abrasion		
80.	The standard time to break a spe Loading conditions is:	cimen on a tensile tester under Constant Rate of		
	(1) $15\pm 3 \text{ sec}$ (2) $20\pm 3 \text{ sec}$	(3) $25 \pm 3 \text{ sec}$ (4) $30 \pm 3 \text{ sec}$		
81.	During the bleaching of cotton with	H <sub>2</sub> O <sub>2</sub> , the stabilizer used is:		
	(1) Sodium Hydroxide	(2) Sodium Silicate		
	(3) Acetic acid	(4) Sodium Carbonate		
82.	Cellulase is used for:			
	(1) Desizing			
	(2) Reducing surface tension of the wash liquor			
	(3) Removing protenious impuritie	•		
	(4) Bio-polishing of cotton fabrics			
83.	Shrinkage observed in cotton yarn	fter mercerization is a result of:		
	(1) Decreased diameter of fibers	(2) Decreased length of fibers		
	(3) Increased diameter of fibers	(4) Increased diameter of fibers		
84.	Jet dyeing machines are built to be	ised with material to liquor ratio of:		
	(1) 1:1 (2) 1:50	(3) 1:30 (4) 1:8		
85.	The cationic dyes are commonly us	ed for:		
	(1) Cotton (2) Nylon	(3) Polyester (4) Acrylic		
86.	With an increase in the concentrat scouring solution would:	on of the wetting agent the surface tension of the		
	(1) Decrease			
	(2) Increase			
	(3) Decrease initially and then incre	ase		
	(4) Decrease initially and then leve	off		
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87.	dy dy are characterized by .				
	(1) High affinity, h	igh reactivity	(2) Low affinity, high reactivity		
	(3) High affinity, low reactivity		(4) Low affinity,	low reactivity	
88.	The dye bath of sol	ubilized vat dyes ha	as:		
	(1) Alkaline pH	(2) Neutral pH	(3) Acidic pH	(4) Reducing nature	
89.	Sublimation transfe	r printing is preferr	ed for:		
	(1) Polyester	(2) Wool	(3) Cotton	(4) Acrylic	
90.	The most preferred	thickener for the pr	int paste for the pigr	ment printing in cotton:	
	(1) Sodium Alginate		(2) Emulsion		
	(3) Starch		(4) Modified cell	ulose	
91. Resistive printing on fabric under reactive dy			ive dyes is carried o	ut at:	
	(1) pH 4-5	(2) pH 7	(3) pH 10-11	(4) pH 14	
92.	Soil release finishes	s are most effective	on:		
	(1) Cotton	(2) Jute	(3) Viscose	(4) Polyester	
93.	Tetrakis (hydroxym	ethyl) phophonium	chloride (THPC) is	<b>a:</b>	
	(1) Softener		(2) Carrier		
	(3) Leveling agent	1.50	(4) Flame retarda	nt Dali sa paten ali	
94.	Disperse dye can't g	generally be fixed or	n polyester by:		
	(1) Super-heated st	eam at 180°C		t ong t + tA	
	(2) Saturated steam	at 130°C			
	(3) Dry heat at 200	°C			
	(4) Saturated steam				
95.	The process to obtain	in dimension stabili	ty in synthetic textil	es is:	
	(1) Milling				
	(2) Carbonizing				
	(3) Heat Setting				
	(4) Sanforizing				

96.	. DMDHEU (Dimethylol dihydroxy ethylene urea) is used as:				
	(1) Flame retardat				
	(2) Crease-resist a	igent			
	(3) Softener				
	(4) Soil repellent				
97.	Liquid Ammonia	reatment is altern	ative to process of:		
	(1) Mercerization		-		
	(3) Bleaching				
	(2) Scouring				
	(4) Singeing				
98.	What would be	the concentration	cotton fabric with 3% of finish required and the specific gravi	in padding bath	% (weight
	(1) 3.125	(2) 4.125	(3) 3.75	(4) 4.5	****
99.	2. The application of reactive dye was carried out on 100 gm cotton fabric with 2% shade using exhaustion method. The reactive dye is having 75% exhaustion and the reactivity of the dye is 85%. Then calculate the amount of dye unreacted.				
	(1) 0.225 gm	(2) 0.3 gm	(3) 0.5 gm	(4) 0.725 gm	
100.	The most suitable	dye combination (	for dyeing of wool/ac	_	
	(1) Acid/Reactive		(2) Acid/Basic		
	(3) Metal-complex	/Direct	(4) Reactive/D	isperse	

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## В

#### Ph.D-EE-December, 2024 Textile Engineering

SET-X	S	E7	<b>-X</b>
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10002

		Sr. No
Time: 11/4 Hours	Max. Marks : 100	Total Questions: 100
Roll No. (in figures)	(in words)	
Name	Date of Birth	
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(Signature of the Candidate)		(Signature of the Invigilator)

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- 7. Use only Black or Blue Ball Point Pen of good quality in the OMR Answer-Sheet.
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100					
1	l. In textile teatio	g for a certain prope	rty the sample size is	proportional to :	
	(1) $eV^{3}$		(2) GV		
	(3) CV08		(4) CV <sup>1</sup>		
5	In the case of c	otton, APIS can be t	ised to measure :		
	(1) Convolution	na per unit length	(2) Maturity		
	(3) Strength		(4) Flongation		
3	The thinnest cla	assimat fault among	the followings is:		
	(1) D4	(2) B	(3) 17	(4) 12	
4.	. The value of br	eaking length in km	(RKM) of a yarn is n	imerically equal to :	
	(1) Tenacity in	N/tex	(2) Breaking to	ad in N	
	(3) Tenacity in	gf/tex	(4) Breaking lo	ad in gf	
ö.	The drape of a	fabric is influenced b	y the most by :		
	(1) Bending rig	ddity	(2) Elongation	at break	
	(3) Tonsile stre	ngth	(4) Bursting str	ength	
6,	The shear chara	eteristics of a fabric	is measured by :		
	(1) KES-PB3	(2) FAST=3	(3) KES-FB2	(4) FAST-2	
7.		ly of a woven fabric , then its flexural rig		ne bending length in the	he warp
	(1) 0.405	(2) 4.050	(3) 4.500	(4) 4500.0	
8.	Pilling propensit	y on fabric surface i	ncreased with ;		
	(1) Increase in l	ength of fiber used i	n the yarn		
	(2) Increase in y	arn twist			
		inter fibre friction	χ.		
	(4) Decrease in (				
^					
Q.			tester increase with		
	(1) Pressure app	lled during abrasion	(2) Speed of abr	rasion = =	
	(3) Area of abrac	led surface	(4) Specimen te	nsion during abrasion	

(4)  $30 \pm 3 \sec$ 

Loading conditions is:

	(1) 15±3 sec	(2) $20 \pm 3 \sec$	(3) $25 \pm 3 \sec$	(4) $30 \pm 3 \sec$
11.	In an air-jet loom	:		
	(1) All the relay	nozzles start jetting a	t the same time	•
	(2) Each relay no	ozzle has separate jett	ting time	
	(3) Relay nozzle	s of a group start jetti	ng at the same time	
	(4) Main and rela	ay nozzles have the s	ame jetting time	
12.	In a projectile loothe west insertion is:	om, the projectile tra angle is 180 degree	vels 250 cm at an ass, the maximum loo	verage velocity of 25 m/s. If m speed in picks per minute
	(1) 300	(2) 320	(3) 340	(4) 360
13.	<ul><li>(1) Should not co</li><li>(2) Does not form</li><li>(3) Can't be used</li></ul>	ontain thermoplastic t	1	
14.	The non-woven p	rocess which has the	highest production r	ate is:
	(1) Needle punch	ning	(2) Hydroentangl	ing
	(3) Melt blowing	Ĺ	(4) Spun bonding	,
15.		stant and course co the value of the loop		f fabrics are 4.2 and 5.46 eximately:
	(1) 1.3	(2) 0.77	(3) 22.93	(4) 9.66
16.	The peak of the w (1) Shedding	eaving tension is obs (2) Picking	served during : (3) Beat-up	(4) Let-off
17.	A STATE OF THE PARTY OF THE PAR	ed from a woven fab arn is 1.1 m, then the	•	× 1 m size. If the length of n integer) is:
	(1) 5	(2) 10	(3) 20	(4) 24
18.		uare fabric in which will be (nearest integ	_	s equal to the yarn diameter
	(1) 36%	(2) 46%	(3) 56%	(4) 65%
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10. The standard time to break a specimen on a tensile tester under Constant Rate of

	(1) 0.55	(2) 0.65	(3) 0.75	(4) 0.85
20.	A shuttle loom is r shaft in degrees/sec	•	per minute. The an	gular velocity of the crank
	(1) 1000	(2) 1080	(3) 1160	(4) 1240
21.	The rotor spun yar same fibers. The re-		ity than the ring spi	un yarn of same count and
	(1) The high produ	ction rate of rotor sp	inning system	
	(2) The fiber double	ling occurs inside the	e rotor	
	(3) The presence o	f wrapper fibers in re	otor spun yarns	
	(4) Twisting and w	vinding is taken place	in rotor spinning	•
22.	<ul><li>(1) Spindle rpm re</li><li>(2) Bobbin rpm re</li><li>(3) Both spindle ar</li></ul>	nains constant		
23.	_	eadth of working are s 260 per inch <sup>2</sup> . The r		n and 25 mm respectively. flat is close to:
	(1) 100750	(2) 8569	(3) 10075	(4) 7690
24.	roduction of very co	pinning of finer cot parse cotton yarns we	ould be: (2) Lower	red rotor diameter for the
	(3) No change		(4) Changes as per	11.
25.				ir pressure at rear nozzle. The relationship between
	(1) P1>P2	(2) P1 <p2< th=""><th>(3) <math>P1 = P2</math></th><th>(4) P1≥P2</th></p2<>	(3) $P1 = P2$	(4) P1≥P2
26.	The direct twist fact twist per unit length cotton yarn will be	h the same, the indire	tex P/V yarn is 38. ect cotton twist mult	28 tpcm X tex <sup>1/2</sup> . To keep iplier (tpi / Ne <sup>1/2</sup> ) of 30 Ne
	(1) 2.95	(2) 3.27	(3) 2.27	(4) 3.83
h.D-l	EE-December, 2024	/(Textile Engg.)(SE	T-X)/(B)	P. T. O.

19. If the warp and weft fractional cover are each 0.5, then the fabric fractional cover is:

27.	. With an increase of	f draft, the drafting f	orce :				43
	(1) Increases		(2)	Decreases			
	(3) Decreases and t	hen level off	(4)	Increases an	d then o	lecreases	
28.	The length of 20 Te	ex cotton yarn in kile	omete	er on a 2 kg co	one will	be:	
	(1) 50	(2) 100	(3)	150	(4)	200	
29.	The following has	the highest index of	irregu	llarity:			
	(1) Carded sliver	(2) Roving		Yarn	(4)	Drawn sliver	
30.	delivery speed are	ing, the diameter of the drum are 40 mr 400 rpm and 250m/ twist per meter prod	the p	perforated dri	um and pective	the average yally. The drum ar	arn tail 1d yarn Irum is
31.		(2) /11	(3)	750		780	
	(1) Kevlar	ins nitrogen and sul	fur is	:			
32.		(2) Nylon 6 on of polyester:	(3)	Wool	(4)	Polyester	
	(2) Heat is absorbe	a					
	(3) No exchange of						
	(4) Small molecule	neat					
33.	(4) Small molecule Which of the follow	s such as water is el	imina	ted			
34,	Which of the follow  (1) Kevlar  The stress	(~) I () Vector		fibre ? Nylon			
	The structure of the (1) Turbostratic structure (3) Honey-comb str	10th				Glass	
35.	The optical birefring (1) Zero	gence of glass fibre	(4)	Graphitic structure of the structure of	ucture cture		
36.	Glass transition tem (1) First order to	perature is called .		Positive		lnfinity	
Ph.D.	(1) First order trans (3) Third order trans EE-December, 2024/	.don temperature	(2) (4)	Second order			
		(1 extile Engg.)(SE	T-X)	(R)	transitio	on temperature on temperature	
			- 71	(4)			

37.	. Which of the fibres - Nomex, Kevlar, PBO (Polybenzoxazole), Spectra - has highes LOI value?						hest	
	(1) Nomex	(2) Kevlar	(3)	PBO	(4) 5	Spectra		
38.	In melt spinning of to avoid:	polyethylene terepht	hala	te, pre drying of	polyn	ner chips i	s esse	ntial
	(1) Oxidative degra	dation	(2)	Thermal degrad	ation			
	(3) Hydrolytic degr	adation	(4)	Higher producti	on	. •		
39.	The cross-section of	a spinneret used for	the	production of ho	llow f	fiber is:		
	(1) Rectangular		(2)	Triangular				
	(3) Annular concen	tric	(4)	C-shaped				
40.	Acrylic fiber has hig	gh glass transition te	mpei	rature primarily d	lue to	:		
	(1) Presence of bull	ky side groups	(2)	Presence of pola	ar side	groups		
	(3) Main chain stiff	ness	(4)	High crystallinit	ty	_		
41.	Resistive printing or	e printing on fabric under reactive dyes is carried out at:						
	(1) pH 4-5	(2) pH 7	(3)	pH 10-11	(4) p	oH 14		
42.	Soil release finishes	are most effective of	n:				÷	
	(1) Cotton	(2) Jute	(3)	Viscose	(4) I	Polyester		
43.	Tetrakis (hydroxym	ethyl) phophonium o	chlor	ide (THPC) is a :	ŀ			
	(1) Softener		(2)	Carrier				
	(3) Leveling agent		(4)	Flame retardant				
44.	Disperse dye can't g	enerally be fixed on	poly	ester by:				
	(1) Super-heated sto	eam at 180°C						
	(2) Saturated steam	at 130°C						
	(3) Dry heat at 200°	C		_ ,				
	(4) Saturated steam	at 100°C						
45.	The process to obtain	n dimension stability	y in s	synthetic textiles	is:			
	(1) Milling		(2)	Carbonizing				
	(3) Heat Setting		(4)	Sanforizing				

	40,	(1) Flame retards	ant	nyiene urea) is used	1 as .
		(2) Crease-resist			
		(3) Softener			
		(4) Soil repellent			THE .
4	47.	Liquid Ammonia	treatment is alterna	tive to process of:	
		(1) Mercerization		(3) Bleaching	
		(2) Scouring		(4) Singeing	
4	48.	What would be	the concentration	of finish required	on the weight of fabric (owf) in padding bath % (weigh ity of the solution is 1.2?
		(1) 3.125	(2) 4.125	(3) 3.75	(4) 4.5
4	49.	using exhaustion	of reactive dye was of method. The reactive. Then calculate the	ve dye is having 75°	m cotton fabric with 2% shade with 2% shade with a shade
		(1) 0.225 gm	(2) 0.3 gm	(3) 0.5 gm	(4) 0.725 gm
	50.	The most suitable	dye combination for	or dyeing of wool/ac	
		(1) Acid/Reactiv		(2) Acid/Basic	7
		(3) Metal-comple	ex/Direct	(4) Reactive/D	Pisperse
5	51.	If the diameter of	a fiber is d, its flex	ural rigidity is prope	ortional to
		(1) d	(2) $d^2$	(3) d4	(4) d8
	52.	Which one of the	following fiber pro	perties corelates the	best with handle of fabric:
		(1) Initial moduli		(2) Yield stres	
		(3) Tenacity at bi	reak	(4) Elongation	at break
5	53.	In stelometer, if F the pendulum is n	is the force acting noved, then F is dire	on a fiber bundle as ectly proportional to	and $\theta$ is the angle through which $\theta$ :
		(1) $\sin \theta$	(2) Cos θ	(3) Tan θ	(4) Cot θ
	54.	The vibroscope account.	method for the de	termination of fibe	er fineness does not take into
		(1) Length of spe	cimen	(2) Natural fre	quency of specimen
		(3) Tension in sp	ecimen		ength of specimen
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55.	The breaking strength load of a 300 mtd 1.24g/cm <sup>3</sup> , approximate breaking stress	ex fiber is 110 mN. If the density of the fiber is in kN/cm <sup>2</sup> is:
	(1) 45.4 (2) 44.4	(3) 43.4 (4) 40.4
56.	The tensile testers with strain gauge tran	sducer rely on:
	(1) Constant Rate of Traverse principle	
	(2) Constant Rate of Loading principle	
	(3) Constant Rate of Extension principl	e was a second
	(4) Pendulum lever principle	
57.	Hairiness module of Uster hairiness test	er works on :
	(1) Impedance principle	(2) Electrical resistance principle
	(3) Capacitance principle	(4) Light scattering principle
58.	In cantilever bending principle, bending	length equals overhanging length (in degrees):
	(1) When $\theta = 7.1$	(2) When $\theta = 20.2$
	(3) When $\theta = 30.3$	(4) When $\theta = 40.4$
59.	Creep of a fibre is measured under:	
	(1) Constant load	(2) Constant stretch
	(3) Constant load and stretch	(4) Variable load
60.	Based on the analysis of a triangular or regarded as short fibers, then the pero- removed at comber to obtain yarn free o	comb sorter diagram, if 30% of fibers can be entage of fibers by. weight which should be f short fiber is:
	(1) 9 (2) 10	(3) 18 (4) 30
61.	During the bleaching of cotton with H <sub>2</sub> C	<sub>2</sub> , the stabilizer used is:
	(1) Sodium Hydroxide	(2) Sodium Silicate
	(3) Acetic acid	(4) Sodium Carbonate
62.	Cellulase is used for:	on the second and and the second of the seco
	(1) Desizing	
	(2) Reducing surface tension of the was	h liquor
	(3) Removing protenious impurities dur	•
	(4) Bio-polishing of cotton fabrics	<u>.</u>

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63.	Shrinkage observed (1) Decreased diam (3) Increased diam	neter of fibers	(2)	nercerization is a result of:  (2) Decreased length of fibers  (4) Increased diameter of fibers		
64.	Jet dyeing machine (1) 1:1	s are built to be used (2) 1:50		material to lique 1 :30	or ratio of : (4) 1: 8	
65.	The cationic dyes a (1) Cotton	re commonly used for (2) Nylon		Polyester	(4) Acrylic	
66.	scouring solution w (1) Decrease (2) Increase (3) Decrease initia			e wetting agent	the surface tension of the	
67. 68.	<ul><li>(1) High affinity, h</li><li>(3) High affinity, l</li></ul>	-	(2) (4)	by: Low affinity, hi Low affinity, lo	igh reactivity ow reactivity	
460	(1) Alkaline pH	(2) Neutral pH		Acidic pH	(4) Reducing nature	
69.		er printing is preferre				
70	(1) Polyester	(2) Wool		Cotton	(4) Acrylic	
70.	(3) Starch	ile	(2) (4)	Emulsion  Modified cellul	ent printing in cotton :	
71.	What is the time, in minutes, required to produce a 1.5 kg cone on a winding machine operating at a winding speed of 1000 m/min with 90% efficiency, given that the yar					
72.	(1) 131.7 Which of the follodrum driven winding	(2) 138.8 owing parameters do	(3) es c	143.2 hange with pack	(4) 147.5 Kage build-up in case of a	
Ph.D-]	(1) Winding speed	(2) Coil Angle  (7) (Textile Engg.)(SE	(3)	Wind angle	(4) Traverse ratio	

73.	With time, the wind per double	· - 1 1 ·	it les			
73.	F - Couple traverse		nder:			
	(1) Increases	(2) Decreases				
	(3) Don't change	(4) First increases the	hen decreases			
74.	Increase in the taper angle on a sectional	l warping machine w	ill require :			
	(1) Increase in the traverse speed	(2) Decrease in the	traverse speed			
	(3) No change in the traverse speed	(4) Increase in the	winding speed			
75.	Ball warping is mostly preferred for:					
	(1) Terry towel (2) Narrow fabric	(3) Denim	(4) Poplin			
76.	100 kg oven dry warp sized to a size a content of 10% would finally weight (ap		ied to an overall moisture			
	(1) 108 (2) 120	(3) 162	(4) 226			
77.	Size add on does not depend upon:					
	(1) Roller hardness	(2) Drying cylinder	r temperature			
	(3) Size paste concentration	(4) Machine speed				
78.	Limitations to the west insertion rate of	a plain shuttle loom i	s imposed by:			
	(1) The loom eccentricity	(2) The picking and checking system				
	(3) The width of the loom	(4) The mass 'of the	e sley			
79.	For a two fold increase in reed width, th	e picking power of a	shuttle loom will increase			
	by:		a comment of the			
	(1) 2 times (2) 4 times	(3) 8 times	(4) 16 times			
80.	If the diameter of a torsion rod used required to twist would increase by:	in projectile loom is	s doubled then the torque			
	(1) 2 times (2) 4 times	(3) 8 times	(4) 16 times			
81.	Forward as well as reverse rotary motion	in cotton combing i	s given to :			
	(1) Feed roller	(2) Cylinder comb				
	(3) Detaching roller	• •	in comber draw box			
82.	What is the noil percentage (according to feed, given that the detaching roller sett cycle is 6 mm, and the longest fiber leng	ting is 15 mm, the le	ength of feed per combing			
	(1) 49 (2) 30	(3) 16	(4) 9			
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U				14			
83.	Drawing and doubling	ng operations on dr	aw-frame are mainly	used to:			
	(1) Improve short- a	and medium-term v	ariation in silver				
	(2) Improve long te						
	(3) Improve sliver s	trength					
	(4) Make the sliver						
84.	What would be the 0 of 6%, are doubled a introduces an addition	and drawn to produc	sliver if eight ends on the same	of slivers, each having the hank, and the draw t	a CV fram		
	(1) 12	(2) 9	(3) 6	(4) 3			
85.	the minimum bobbin			a ring of 40 mm dian	neter		
	(1) 15	(2) 18	(3) 20	(4) 22			
86.	The increase in trave	ler weight leads to	an increase in:				
		(2) Yarn Twist	(3) Traveler Lag	(4) Balloon Diamete	er		
87.	Softer cots on draftir		:				
	(1) An increase draf	ting wave	(2) Less fiber slipp	oage at roller nip			
	(3) Change in draft	T.	(4) Reduced roller	lapping			
88.	increased to 35 mm,	in when the doddii	n diameter is 28 mm (rpm) would be :	d traveler speed) of ya . If the bobbin diame	ırn in ter is		
89.			(3) 160	(4) 140			
05.	The maximum yarn tension in ring frame is typically observed at:  (1) Between the lappet guide and front roller						
e grant	(2) Where the ballon		mum				
	(3) In the winding zo						
	(4) Just below the lap		,				
90.	For a given yarn fine:	ness, use of light ri	no travelor air				
	(1) Small ballon size	but more varn con	tent and the tent				
	(2) Small ballon size	but less yarn conte	tent on the bobbin				
	(3) Big ballon size by	at more varn come	on the bobbin				
	(4) Big ballon size by	at less yarn conter	it on the bobbin				
		1033 yain content	on the bobbin				

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				***
91.	Which fiber has	the least density?		
	(1) Polyester	(2) Cotton	(3) Viscone	(A) Polypropylene
92.	Water is added a in that of a	o caprolastam durin	ig the polymerization	of Nylon 6. The primary tele-
	(1) Solvent	(2) Catalyst	(3) Heat sink	(A) SNAMWIEN
93.	As a result of ten (1) Crystaline or	ision annealing of di tientation decreases	vermoplastic fibers;	
			ge Sonie modulus inci	TEMBES.
	<ul><li>(3) Melting poin</li><li>(4) Sonic modul</li></ul>			
9.4			cooper due to de	
57,	(1) One function		occurs due to the pres	
	(3) Low temper:		(2) Two function of	
95	,		(4) Addition of	а сапправину
30.00		sed for producing vi		
	(1) Melt spinnin	Er-	(2) Wet spinnin	
	(3) Dry spinning		(4) Dry-jet spin	ning
30.	Which of the fol	lowing is a leaf fibe	1	
	(1) Sisal	(2) Flax	(3) Ramie	(4) Banana
87.	High elastic reco	every of wood is prec	dominately a result of	<b>'</b>
	(1) Cryualine li	okages	(2) Deformation	n of amorphous regions
	(3) Percent crys	tattine	(4) 0-B transfor	mation
<b>88</b> .	The breaking ex-	tension of flax, colli der is :	on, jute and word at a	standard testing atmosphere in
	(1) Wool > Jute	> Centon > Flax		
	(2) Wood > Cou	on > litte > Plax		
	(3) Word > lute	> Plax > Coton		
	(4) Wood > Cou	on > Plax > Jule		
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99.	Shrinkage	of	cotton	fabric	during	wetting	is	caused	by	かり

(1) Extension of fiber

(2) Crimping of fiber

(3) Swelling of fiber

(4) Compression of fiber

100. Which of the following amino acids are responsible for relatively higher wet strength of the wool fiber?

- (1) Sericin
- (2) Cystine
- (3) Tyrosine
- (4) Threonine

Total No. of Printed Pages: 13

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## (DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)

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#### Ph.D-EE-December, 2024 Textile Engineering

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Time: 11/4 Hours	Max. Marks : 100	Total Questions: 100
Roll No. (in figures)	(in words)	
Name	Date of Birth	
Father's Name	Mother's Name	
Date of Examination		
(Signature of the Candidate)		(Signature of the Invigilator)

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1.	What is the time, in minutes, required to produce a 1.5 kg cone on a winding machine operating at a winding speed of 1000 m/min with 90% efficiency, given that the yarn has a linear density of 12 tex?						
	(1) 131.7	(2) 138.8	(3)	143.2	(4) 147.5		
2.	Which of the followard drum driven winding	wing parameters doo g machine?	es ch	ange with pack	cage build-up in	case of a	
	(1) Winding speed	(2) Coil Angle	(3)	Wind angle	(4) Traverse ra	tio	
3.	With time, the wind	l per double traverse	in a c	drum-driven wii	nder:		
	(1) Increases		(2)	Decreases			
	(3) Don't change		(4)	First increases t	hen decreases		
4.	Increase in the tape	r angle on a sectional	l war	ping machine w	ill require:		
	(1) Increase in the	traverse speed	(2)	Decrease in the	traverse speed		
	(3) No change in the	he traverse speed	(4)	Increase in the	winding speed		
5.	Ball warping is mo	stly preferred for:					
	(1) Terry towel	(2) Narrow fabric	(3)	Denim	(4) Poplin		
6.		varp sized to a size a ould finally weight (ap			ried to an overal	l moisture	
	(1) 108	(2) 120	(3)	162	(4) 226		
7.	Size add on does n	ot depend upon :					
	(1) Roller hardnes	s	(2)	Drying cylinde	r temperature		
	(3) Size paste con	centration	(4) Machine speed				
8.	Limitations to the	weft insertion rate of	a pla	in shuttle loom	is imposed by:		
	(1) The loom ecce	entricity	(2)	The picking an	d checking syste	m	
	(3) The width of t			The mass 'of the	·-		
9	For a two fold inci	rease in reed width, the	he pi	cking power of	a shuttle loom wi	ill increase	
	(1) 2 times	(2) 4 times	(3)	8 times	(4) 16 times		
10	. If the diameter of required to twist w	a torsion rod used yould increase by:	in p	orojectile loom	is doubled then	the torque	
	(1) 2 times	(2) 4 times		8 times	(4) 16 times		
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11.	Forward as well as reverse rotary mo	otion in cotton combi	ng is given to:
	(1) Feed roller	(2) Cylinder co	mb
	(3) Detaching roller	(4) Drawing ro	llers in comber draw box
12.	feed, given that the detaching roller cycle is 6 mm, and the longest fiber l	setting is 15 mm, the ength is 30 mm?	ne length of feed per combing
12	(=) 50	(3) 16	(4) 9
13.	<ul> <li>Drawing and doubling operations on</li> <li>(1) Improve short- and medium-term</li> <li>(2) Improve long term variation in sl</li> <li>(3) Improve sliver strength</li> <li>(4) Make the sliver finer</li> </ul>	variation in silver	ly used to:
14.	What would be the CV of the resultar of 6%, are doubled and drawn to prodintroduces an additional 2.12% CV?	nt sliver if eight ends luce a sliver of the sa	of slivers, each having a CV me hank, and the draw frame
	(1) 12 (2) 9	(3) 6	(4) 3
15.	the minimum bobbin diameter in mm	ead is 30 degrees. For	r a ring of 40 mm diameter,
	(1) 15 (2) 18	(3) 20	(4) 22
16.	The increase in traveler weight leads to	o an increase in ·	(4) 22
17.	<ol> <li>Yarn Tension (2) Yarn Twist</li> <li>Softer cots on drafting rollers results in</li> <li>An increase drafting wave</li> </ol>	(3) Traveler Lag	(4) Balloon Diameter
	(3) Change in draft	(2) Less fiber slipp (4) Redu	page at roller nip
18.	The winding speed (difference between ring frame is 200 rpm when the bobbi increased to 35 mm, the winding speed (1) 200 (2) 180	n the bobbin speed an n diameter is 28 mm (rpm) would be:	d traveler speed) of yarn in If the bobbin diameter is
19.		(3) 160	(4) 140
	The maximum yarn tension in ring fram  (1) Between the lappet guide and front  (2) When the lappet guide and front		d at :
17010	(2) where the ballon radius is the maxis	mum	
	(3) In the winding zone	,	T * 2 . 91
Dt. r	(4) Just below the lappet guide		
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		2 1 5	

20.	For a given yarn fineness, use of light ring traveler gives:						
	(1) Small ballon size but more yarn content on the bobbin						
	(2) Small ballon size but less yarn content on the bobbin						
	(3) Big ballon size	but more yarn conte	nt on the bobbin				
	(4) Big ballon size	but less yarn conten	t on the bobbin				
21.	Which fiber has the	least density?		'V •			
	(1) Polyester	(2) Cotton	(3) Viscose	(4) Polypropylene			
22.	Water is added to c is that of a	caprolactam during the	he polymerization of	f Nylon 6. The primary role			
	(1) Solvent	(2) Catalyst	(3) Heat sink	(4) Stabilizer			
23.	(1) Crystaline orie	ak does not change S decreases		ses			
24.	Polycondensation r	eaction typically occ	urs due to the preser	ace of :			
	(1) One functional	•	(2) Two functiona	-			
	(3) Low temperatu		(4) Addition of a compound				
25.		l for producing visco					
		(2) Wet spinning	(3) Dry spinning	(4) Dry-jet spinning			
26.	Which of the follow			415.75			
	(1) Sisal	(2) Flax	(3) Ramie	(4) Banana			
27.	<ul><li>High elastic recovery of wool is predon</li><li>(1) Crystaline linkages</li><li>(3) Percent crystalline</li></ul>		minately a result of:  (2) Deformation of amorphous regions  (4) α-β transformation				
28.	The breaking exter the decreasing orde		jute and wool at star	ndard testing atmosphere in			
1	(1) Wool > Jute >	Cotton > Flax	(2) Wool > Cottor	ı > Jute > Flax			
	(3) Wool > Jute >	Flax > Cotton	(4) Wool > Cottor	> Flax > Jute			
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29.	Shrinkage of cotton fabr	ic during wetting	g is caus	sed by:	a <sup>r</sup> j	Social Control	
	(1) Extension of fiber		(2) Crimping of fiber				
	(3) Swelling of fiber	D T	(4) Co	mpression of	fiber		
30.	Which of the following of the wool fiber?	amino acids arc	respon	sible for rela	tively h	igher wet s	trength
	(1) Sericin (2)	Cystine	(3) Ty	rosine	(4) Thr	coninc	
31.	Resistive printing on fab	ric under reactiv	e dyes i	s carried out	at:		
	(1) pH 4-5 (2)	pH 7	(3) pH	10-11	(4) pH	14	
32.	Soil release finishes are	most effective or	n :				
	(1) Cotton (2).	Jute	(3) Vis	cose	(4) Poly	yester	
33.	Tetrakis (hydroxymethyl	) phophonium cl	hloride (	THPC) is a:		. 91	
	(1) Softener		(2) Car	rier			
	(3) Leveling agent		(4) Fla	me retardant	1.80		
34.	Disperse dye can't genera	ally be fixed on p	oolyeste	r by:			
	(1) Super-heated steam a	at 180°C					
	(2) Saturated steam at 13	30°C	at vile				
	(3) Dry heat at 200°C						
	(4) Saturated steam at 10	00°C					
35.	The process to obtain din	nension stability	in synth	etic textiles is	:		
	(1) Milling						
	(2) Carbonizing						
	(3) Heat Setting						*
	(4) Sanforizing						
36.	DMDHEU (Dimethylol d	ihydroxy ethyler	ne urea)	is used as:	1.17		
	(1) Flame retardant						
	(2) Crease-resist agent						
	(3) Softener						
	(4) Soil repellent						
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37.	Liquid Ammonia tr	catment is alternat	ive to process of:	t in the second of the second
	(1) Mercerization	₹		
	(3) Bleaching			
	(2) Scouring			
	(4) Singeing			
38.	The anti-crease fin What would be t	the concentration	of finish required	on the weight of fabric (owf). in padding bath % (weight y of the solution is 1.2?
	(1) 3.125	(2) 4.125	(3) 3.75	(4) 4.5
39.	using exhaustion r	nethod. The reactiv	carried out on 100 graye dye is having 75% amount of dye unre	m cotton fabric with 2% shade a caching and the reactivity acted.
	(1) 0.225 gm	(2) 0.3 gm	(3) 0.5 gm	(4) 0.725 gm
40.	The most suitable	dye combination for	or dyeing of wool/ac	rylic blend is
	(1) Acid/Reactive	2	(2) Acid/Basic	
	(3) Metal-comple	ex/Direct	(4) Reactive/D	isperse
41.	If the diameter of	a fiber is d, its flex	ural rigidity is propo	rtional to :
	(1) d	(2) $d^2$	(3) $d^4$	(4) d8
42.	. Which one of the	following fiber pro	perties corelates the	best with handle of fabric:
	(1) Initial modulo		(2) Yield stress	
	(3) Tenacity at bi		(4) Elongation	at break
43	In stelometer, if F	is the force acting	on a fiber bundle an ectly proportional to	d $\theta$ is the angle through which :
	(1) Sin θ	(2) Cos θ	(3) Tan $\theta$	(4) Cot θ
44		method for the de	termination of fibe	r fineness does not take into
	account.			
	(1) Length of spe			
		ency of specimen		
	(3) Tension in sp	ecimen		
	(4) Tensile stren	gin of specimen		
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С

O mtex fiber is 110 mN. If the density of the tress in kN/cm² is:	e rozeme
(3) 43.4 (4) 40.4	
e transducer rely on : ciple ciple nciple	
tester works on: (2) Electrical resistance principle (4) Light scattering principle	
ding length equals overhanging length (in degree) (2) When $\theta = 20.2$ (4) When $\theta = 40.4$	ees)
(2) Constant stretch (4) Variable load	
lar comb sorter diagram, if 30% of fibers ca percentage of fibers by, weight which shoul se of short fiber is; (3) 18 (4) 30	
ormity than the ring spun yarn of same count repinning system the rotor nector spun yarns are in rotor spun yarns are in rotor spinning	and
rain constant	
11	iry main constant (SET-X)/(C)

19	The length and breadth of working area of a that is 100 cm and 35 mm respectively. The book density is $200$ per mch <sup>3</sup> . The number of teeth on a flat is close to :				
	(1) 100730	(2) Känu	(3) 10073	(4) 7690	
84.	Compared to the spinning of finer contou yarns, the preferred rotor diameter for the roduction of very coarse collon yarns would be:				
	(1) Higher		(2) Lower		
	(3) No change		(4) Changes as per	fiber strength	
88.	In air-jet spinning machine, P1 and P2 are the supply air pressure at rear nosste (entryside) and the front nosste (delivery side) respectively. The relationship between the P1 and P2 is (				
	(1) P18P2	(3) 14<13	(0) P1 = P2	(4) 11312	
88.	The direct twist factor of a single 20.5 (ex 197) yarn is 38.28 (pen X (ex $^{19}$ ). To keep twist per unit length the same, the indirect conton twist multiplier (tpi / Ne $^{19}$ ) of 30 Ne conton yarn will be approximately:				
	(1) 2.05	(3) 137	(3) 3.37	£8.£ (4)	
87.	With an increase of draft, the drafting force:				
	(1) Increases		(2) Decreases		
	(3) Decreases and then level off		(4) Increases and then decreases		
88.	The length of 20 Tex conon yarn in kilometer on a 2 kg cone will be a				
	(1) 80	(2) 100	(3) 180	(4) 200	
145	The following has the highest index of irregularity?				
	(1) Carded sliver	(2) Roving	(3) Yain	(4) Drawn sliver	
60.	the second secon				
	(1) 650	(3) *11	(1) 150	(4)	
81.	In textile texting for a certain property the sample size is preportional to:				
	(I) C/13		(5) (1)		
	(4) Chas		(4) (1)		

62.	In the case of cotton, AFIS can be used to measure:				
	(1) Convolutions per unit length	(2) Maturity			
	(3) Strength	(4) Elongation			
63.	3. The thinnest classimat fault among the followings is:				
	(1) D4 (2) E	(3) F (4) 12			
64.	The value of breaking length in km	(RKM) of a yarn is numerically equal to:			
•	(1) Tenacity in N/tex	(2) Breaking load in N			
	(3) Tenacity in gf/tex	(4) Breaking load in gf			
65.	The drape of a fabric is influenced by	y the most by:			
	(1) Bending rigidity	(2) Elongation at break			
	(3) Tensile strength	(4) Bursting strength			
66.	The shear characteristics of a fabric i	s measured by :			
	(1) KES-FB3 (2) FAST-3	(3) KES-FB2 (4) FAST-2			
67.	The areal density of a woven fabric direction is 3cm, then its flexural rigid	0 gm/m <sup>2</sup> and the bending length in the warp in gm.cm is:			
	(1) 0.405 (2) 4.050	(3) 4.500 (4) 4500.0			
68.	Pilling propensity on fabric surface increased with:  (1) Increase in length of fiber used in the yarn  (2) Increase in yarn twist  (3) Decrease in inter fibre friction  (4) Decrease in fiber strength				
69.	The abrasion cycles on a flat abrasion  (1) Pressure applied during abrasion  (3) Area of abraded surface	tester increase with an increase in:  (2) Speed of abrasion  (4) Specimen tension during abrasion			
70.	The standard time to break a specime Loading conditions is:	nen on a tensile tester under Constant Rate of			
71.	(1) $15\pm3$ sec (2) $20\pm3$ sec During the bleaching of cotton with H <sub>2</sub> (1) $5$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$	(3) $25 \pm 3 \text{ sec}$ (4) $30 \pm 3 \text{ sec}$			
	(3) Acetic acid	(2) Sodium Silicate (4) Sodium Carbonate			
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72.	Cellulase is used for:					
	(1) Desizing	1.1428				
	(2) Reducing surface tension of the wash liquor					
	(3) Removing protenious impurities during scouring					
	(4) Bio-polishing of cotton fabrics					
73.	Shrinkage observed in cotton yarn after mercerization is a result of:					
	(1) Decreased diameter of fibers	(2) Decreased length of fibers				
	(3) Increased diameter of fibers	(4) Increased diameter of fibers				
74.	Jet dyeing machines are built to be us	ed with material to liquor ratio of:				
	(1) 1: 1 (2) 1:50	(3) 1:30 (4) 1:8				
75.	The cationic dyes are commonly used	l for:				
	(1) Cotton (2) Nylon	(3) Polyester (4) Acrylic				
76.	scouring solution would:	on of the wetting agent the surface tension of the				
	(1) Decrease					
	<ul><li>(2) Increase</li><li>(3) Decrease initially and then increase</li><li>(4) Decrease initially and then level</li></ul>	off				
77.	Differential displayer are characterized by					
	(1) High affinity, high reactivity (2) Low affinity, high reactivity					
	(3) High affinity, low reactivity	(4) Low affinity, low reactivity				
78.	The dye bath of solubilized vat dyes	has:				
	(1) Alkaline pH (2) Neutral pH					
79.	(1) Polyester (2) Wool	(3) Cotton (4) Acrylic				
80.	(1) Sodium Alginate (3) Starch	print paste for the pigment printing in cotton:  (2) Emulsion  (4) Modified cellulose				
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81.	The fiber that cont	ains nitrogen and su	lfur is	:	
	(1) Kevlar	(2) Nylon 6		Wool	(4) Polyester
82.	During crystallizat	ion of polyester:			
	(1) Heat evolved				
	(2) Heat is absorbe	ed			
	(3) No exchange of	of heat			
	(4) Small molecul	es such as water is e	limina	nted	
83.	Which of the follow	wing is liquid crysta	l spun	fibre?	
	(1) Kevlar	(2) Polyester	(3)	Nylon	(4) Glass
84.	The structure of the	e Carbon fibre is:			
	(1) Turbostratic st	ructure	(2)	Graphitic struc	cture
	(3) Honey-comb s	tructure	(4)	Flexible struct	ure
85.	The optical birefrin	gence of glass fibre	is:		
	(1) Zero	(2) Negative	(3)	Positive	(4) Infinity
86.	Glass transition ten	perature is called:			
	(1) First order tran	sition temperature	(2)	Second order t	ransition temperature
	(3) Third order trai	nsition temperature	(4)	Fourth order tr	ansition temperature
87.	Which of the fibre LOI value?	s - Nomex, Kevlar,	PBO	(Polybenzoxaz	cole), Spectra - has highest
	(1) Nomex	(2) Kevlar	(3)	РВО	(4) Spectra
88.	In melt spinning of to avoid:	polyethylene tereph	thalate	e, pre drying of	f polymer chips is essential
	(1) Oxidative degra	dation	(2)	Thermal degrae	dation
	(3) Hydrolytic degr	adation	<b>(4)</b>	Higher product	ion
89.	The cross-section of	a spinneret used for	the p	roduction of ho	ollow fiber is:
	(1) Rectangular			<b>Friangular</b>	
	(3) Annular concent	tric	(4) (	C-shaped	

90.	Acrylic fiber has hi	sel class		To the state of th	1
360	Acrylic fiber has hi (1) Presence of but	lky side	temperature prim	arily due to:	
	(2) Presence of pol	Saul Control			
	(3) Main chain stiff				
	(4) High crystallin				
•	In an air-jet loom:	at y			
91.					
	(1) All the relay no			8	
	(2) Each relay noz				
	(3) Relay nozzles			me	
	(4) Main and relay	nozzles have the s	ame jetting time		
92.	In a projectile loor the weft insertion:	n, the projectile tra angle is 180 degree	wels 250 cm at a	n average velocity of 25 m/s a loom speed in picks per minus	N. C.
	is:	2		and the same of th	
	(1) 300	(2) 320	(3) 340	(4) 360	
93.	A perpendicular la	id non-woven:			
	(1) Should not con	ntain thermoplastic	fiber		
	(2) Does not form	a 3-D structure			
	(3) Can't be used a	as replacement foan	n		
	(4) Exhibits high	recovery from comp	pression		
94.	The non-woven pr	ocess which has the	highest producti	on cate is:	
	(1) Needle punchi	ng	(2) Hydroenta	See See	
	(3) Melt blowing		(4) Spun bon		
95.	If the wale const respectively, then	tant and course or the value of the loop	onstant for a kn o shape factor is a	itted fabrics are 4.2 and 5.46 pproximately:	>
	(1) 1.3	(2) 0.77	(3) 22.93	(4) 9,66	
96.	The peak of the we		served during:	CALLED TO THE	
	(1) Shedding	(2) Picking	(3) Beat-up		
97.	A yarn is unravele the straightened ya	ed from a woven fairn is 1.1 m, then the	bric specimen of e crimp percentag	1 m × 1 m size. If the length of e (in integer) is:	
	(1) 5	(2) 10	(3) 20	(4) 24	
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98.	The crimp of a square without jamming v	uare fabric in which will be (nearest intego	the thread spacing is er):	equal to the yarn diameter		
	(1) 36%	(2) 46%	(3) 56%	(4) 65%		
99.	9. If the warp and weft fractional cover are each 0.5, then the fabric fractional cover is:					
	(1) 0.55	(2) 0.65	(3) 0.75	(4) 0.85		
100.	A shuttle loom is running at 180 picks per minute. The angular velocity of the crank shaft in degrees/second is:					
	(1) 1000	(2) 1080	(3) 1160	(4) 1240		

Total No. of Printed Pages: 13

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## D

## Ph.D-EE-December, 2024 Textile Engineering

SET-X
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10004

		20004
		Sr. No
Time: 11/4 Hours	Max. Marks : 100	Total Questions: 100
Roll No. (in figures)	(in words)	
Name	Date of Birth	
Father's Name	Mother's Name	
Date of Examination		
(Signature of the Candidate)		(Signature of the Invigilator)

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- 1. All questions are compulsory.
- 2. The candidates *must return* the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfairmeans / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
- 3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
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1.	The floci that conta	ams muogen and sur	Iui 13	.**	
	(1) Kevlar	(2) Nylon 6	(3)	Wool	(4) Polyester
2.	During crystallizat	ion of polyester:			
	(1) Heat evolved				
	(2) Heat is absorbe	ed			
	(3) No exchange of	f heat			
	(4) Small molecule	es such as water is el	imina	ated	
3.	Which of the follow	wing is liquid crystal	spun	fibre?	
	(1) Kevlar	(2) Polyester	(3)	Nylon	(4) Glass
4.	The structure of the	e Carbon fibre is:			
	(1) Turbostratic st	ructure	(2)	Graphitic str	ructure
	(3) Honey-comb s	tructure	(4)	Flexible stru	cture
5.	The optical birefrin	igence of glass fibre	is:		
	(1) Zero	(2) Negative	(3)	Positive	(4) Infinity
6.	Glass transition ter	nperature is called:		HIL HT.	
	(1) First order tran	sition temperature	(2)	Second orde	r transition temperature
	(3) Third order tra	nsition temperature	(4)	Fourth order	transition temperature
7.	Which of the fibre LOI value?	s - Nomex, Kevlar,	PBO	(Polybenzox	azole), Spectra - has highest
	(1) Nomex	(2) Kevlar	(3)	PBO	(4) Spectra
8.	In melt spinning of to avoid:	polyethylene tereph	thala	te, pre drying	of polymer chips is essential
	(1) Oxidative degra	adation	(2)	Thermal deg	radation
	(3) Hydrolytic deg	radation	(4)	Higher prod	uction
9.	The cross-section o	f a spinneret used for	r the	production of	hollow fiber is:
	(1) Rectangular		(2)	Triangular	
	(3) Annular concer	ıtric	(4)	C-shaped	

10.	Acrylic fiber has high glass transition temperature primarily due to:						
	(1) Presence of bulky side groups			(2) Presence of polar side groups			
	(3) Main chain stiff	fness	(4)	High crystallin	ity	+ 1	
11.	Resistive printing o	n fabric under reacti	ve dy	yes is carried out	at:		
	(1) pH 4-5	(2) pH 7		pH 10-11		Н 14	
12.	Soil release finishes	are most effective of	on:				
	(1) Cotton	(2) Jute	(3)	Viscose	(4) <b>F</b>	Polyester	
13.	Tetrakis (hydroxym	ethyl) phophonium	chlor	ide (THPC) is a	:		
	(1) Softener		(2)	Carrier			
	(3) Leveling agent		(4)	Flame retardant	i.		
14.	Disperse dye can't generally be fixed on polyester by:						
	(1) Super-heated steam at 180°C						" .
	(2) Saturated steam	at 130°C					
	(3) Dry heat at 200	°C	1	9.4			
	(4) Saturated steam	at 100°C					
15.	The process to obta	in dimension stabilit	y in s	synthetic textiles	is:	- <del>L</del> a 9-12.	
	(1) Milling	8.78 P. 400					
	(2) Carbonizing	r - tr r - ,					
	(3) Heat Setting						7
	(4) Sanforizing						ŗ
16.	DMDHEU (Dimeth	ylol dihydroxy ethyl	lene ı	rea) is used as			
	(1) Flame retardant			Crease-resist ag	ent	T. T. T.	
	(3) Softener			Soil repellent	CIIC	7 4 4 5	
17.	Liquid Ammonia tro	eatment is alternative	e to p	rocess of ·		a Burry	
	(1) Mercerization		•	Ph			
	(3) Bleaching	al de	-				
	(2) Scouring	A Mariegan					
	(4) Singeing				4.0	. Junes	
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18.	What would be	the concentration of	ton fabric with 3% on the weight of fabric (owf). f finish required in padding bath % (weight the specific gravity of the solution is 1.2?			
	(1) 3.125	(2) 4.125	(3) 3.75	(4) 4.5		
19.	using exhaustion n	nethod. The reactive	carried out on 100 gm cotton fabric with 2% shad we dye is having 75% exhaustion and the reactivity amount of dye unreacted.  (3) 0.5 gm (4) 0.725 gm			
	(1) 0.225 gm	(2) 0.3 gm	(3) 0.5 gm	(4) 0.725 gm		
20.	The most suitable	dye combination for	dyeing of wool/acryli	c blend is		
	(1) Acid/Reactive		(2) Acid/Basic			
	(3) Metal-complex	d/Direct	(4) Reactive/Disperse			
21.	. In textile testing for a certain property the sample size is proportional to :					
	(1) CV <sup>2</sup>		(2) CV			
	(3) $CV^{0.5}$		$(4) CV^3$			
22.	. In the case of cotton, AFIS can be used to measure:					
	(1) Convolutions per unit length		(2) Maturity			
	(3) Strength		(4) Elongation			
23.	The thinnest classic	nat fault among the f	ollowings is:			
	(1) D4	(2) E	(3) F	(4) 12		
24.	The value of breaki	ng length in km (RK	M) of a yarn is nume	rically equal to:		
	(1) Tenacity in N/to	ex	(2) Breaking load is	n N		
	(3) Tenacity in gf/to	ex	(4) Breaking load in	n gf		
25.	The drape of a fabri	c is influenced by the	e most by:			
	(1) Bending rigidity	,	(2) Elongation at break			
	(3) Tensile strength		(4) Bursting strengt	ih		
26.		stics of a fabric is m		CAST TO LIGHT IN		
	(1) KES-FB3	(2) FAST-3	(3) KES-FB2	(4) FAST-2		
	The areal density of direction is 3cm, the			ending length in the warp		
	(1) 0.405	(2) 4.050	(3) 4.500	(4) 4500.0		
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	(1) Increase in length of fiber used in the yarn
	(2) Increase in yarn twist
	(3) Decrease in inter fibre friction
	(4) Decrease in fiber strength
29.	The abrasion cycles on a flat abrasion tester increase with an increase in:  (1) Pressure applied during abrasion  (2) Speed of abrasion  (3) Area of abraded surface  (4) Specimen tension during abrasion
30.	The standard time to break a specimen on a tensile tester under Constant Rate of Loading conditions is:
	(1) $15\pm 3 \text{ sec}$ (2) $20\pm 3 \text{ sec}$ (3) $25\pm 3 \text{ sec}$ (4) $30\pm 3 \text{ sec}$
31.	In an air-jet loom:  (1) All the relay nozzles start jetting at the same time  (2) Each relay nozzle has separate jetting time  (3) Relay nozzles of a group start jetting at the same time  (4) Main and relay nozzles have the same jetting time
32.	In a projectile loom, the projectile travels 250 cm at an average velocity of 25 m/s. If the west insertion angle is 180 degrees, the maximum loom speed in picks per minute is:  (1) 300  (2) 320  (3) 340  (4) 360
33.	A perpendicular laid non-woven:  (1) Should not contain thermoplastic fiber  (2) Does not form a 3-D structure  (3) Can't be used as replacement foam  (4) Exhibits high recovery from compression
34.	The non-woven process which has the highest production rate is:  (1) Needle punching  (2) Hydroentangling  (3) Melt blowing  (4) Spun bonding
35.	If the wale constant and course constant for a knitted fabrics are 4.2 and 5.46 respectively, then the value of the loop shape factor is approximately:
	(1) 1.3 (2) 0.77 (3) 22.93 (4) 9.66
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28. Pilling propensity on fabric surface increased with:

36.	The peak of the wea	ving tension is obser	ved during:		32	
\$ I	(1) Shedding	(2) Picking	(3) Beat-up	(4) Let-off		
37.	A yarn is unraveled the straightened yar	from a woven fabri n is 1.1 m, then the c	c specimen of 1 m × rimp percentage (in i	1 m size. If the I nteger) is:	ength of	
	(1) 5	(2) 10	(3) 20	(4) 24	12	
38.	The crimp of a squawithout jamming wi	are fabric in which the Ill be (nearest integer	ne thread spacing is o	equal to the yarn o	diameter	
	(1) 36%	(2) 46%	(3) 56%	(4) 65%		
39.	If the warp and weft	fractional cover are	each 0.5, then the fal	bric fractional cov	er is :	
	(1) 0.55	(2) 0.65	(3) 0.75	(4) 0.85		
40.	A shuttle loom is reshaft in degrees/second		per minute. The ang	ular velocity of the	ne crank	
	(1) 1000	(2) 1080	(3) 1160	(4) 1240		
41.	same fibers. The reason is:  (1) The high production rate of rotor spinning system  (2) The fiber doubling occurs inside the rotor  (3) The presence of wrapper fibers in rotor spun yarns  (4) Twisting and winding is taken place in rotor spinning					
	<ol> <li>Spindle rpm ren</li> <li>Bobbin rpm ren</li> <li>Both spindle and</li> <li>Both spindle and</li> </ol>	nains constant	constant		N W	
43.	The length and breathe tooth density is	ndth of working area 260 per inch <sup>2</sup> . The n			ectively.	
	(1) 100750	(2) 8569	(3) 10075	(4) 7690		
44.	Compared to the sproduction of very co	The second secon	7.0	red rotor diamete	r for the	
	(1) Higher		(2) Lower			
	(3) No change		(4) Changes as per	fiber strength		
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45.	In air-jet spinning machine, P1 and P2 are the supply air pressure at rear nozzle (entryside) and the front nozzle (delivery side) respectively. The relationship between the P1 and P2 is:						
	(1) P1>P2	(2) P1 <p2< th=""><th>(3) <math>P1 = P2</math></th><th>(4) P1≥P2</th></p2<>	(3) $P1 = P2$	(4) P1≥P2			
46.	The direct twist factor of a single 29.5 tex P/V yarn is 38.28 tpcm X tex twist per unit length the same, the indirect cotton twist multiplier (tpi / Ne <sup>1/t</sup> cotton yarn will be approximately:						
	(1) 2.95	(2) 3.27	(3) 2.27	(4) 3.83			
47.	With an increase of	f draft, the drafting fo	orce :				
	(1) Increases	,,	(2) Decreases				
	(3) Decreases and t	hen level off	(4) Increases and then decreases				
48.	The length of 20 Te	ex cotton yarn in kilo	meter on a 2 kg cone	will be :			
	(1) 50	(2) 100	(3) 150	(4) 200			
49.							
	(1) Carded sliver	(2) Roving	(3) Yarn	(4) Drawn sliver			
50.	In a friction spinning, the diameter of the perforated drum and the average yarn tail diameter resting on the drum are 40 mm and 0.18 mm respectively. The drum and yarn delivery speed are 400 rpm and 250m/min respectively. If the slippage of the drum is 80% then the false twist per meter produced in the yarn at the friction drum is:						
	(1) 650	(2) 711	(3) 750	(4) 780			
51.	Forward as well as (1) Feed roller (3) Detaching rolle		otion in cotton combing is given to:  (2) Cylinder comb  (4) Drawing rollers in comber draw box				
52.							
	(1) 49	(2) 30	(3) 16	(4) 9			
53.			w-frame are mainly t	used to:			
		and medium-term va					
	(3) Improve sliver s		•				
	(4) Make the sliver	finer					
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1/2. To keep of 30 Ne

sliver

rage yarn tail irum and yarn of the drum is mis:

raw box

with forward per combing

54. What would be the CV of the resultant sliver if eight ends of slivers, each having a CV of 6%, are doubled and drawn to produce a sliver of the same hank, and the draw frame introduces an additional 2.12% CV?

(1) 12

D

- (2) 9
- (4) 3

55. The permissible minimum angle of lead is 30 degrees. For a ring of 40 mm diameter, the minimum bobbin diameter in mm is:

- (1) 15
- (2) 18
- (4) 22

56. The increase in traveler weight leads to an increase in :

- (1) Yarn Tension (2) Yarn Twist
- (3) Traveler Lag
- (4) Balloon Diameter

57. Softer cots on drafting rollers results in:

- (1) An increase drafting wave
- (2) Less fiber slippage at roller nip

(3) Change in draft

(4) Reduced roller lapping

58. The winding speed (difference between the bobbin speed and traveler speed) of yarn in ring frame is 200 rpm when the bobbin diameter is 28 mm. If the bobbin diameter is increased to 35 mm, the winding speed (rpm) would be:

- (1) 200
- (2) 180

59. The maximum yarn tension in ring frame is typically observed at:

- (1) Between the lappet guide and front roller
- (2) Where the ballon radius is the maximum
- (3) In the winding zone
- (4) Just below the lappet guide

60. For a given yarn fineness, use of light ring traveler gives :

- (1) Small ballon size but more yarn content on the bobbin
- (2) Small ballon size but less yarn content on the bobbin
- (3) Big ballon size but more yarn content on the bobbin
- (4) Big ballon size but less yarn content on the bobbin

61. What is the time, in minutes, required to produce a 1.5 kg cone on a winding machine operating at a winding speed of 1000 m/min with 90% efficiency, given that the yarn has a linear density of 12 tex?

- (1) 131.7
- (2) 138.8
- (3) 143.2
- $(4) \cdot 147.5$

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62.	Which of the follo		does change with package build-up in case of a		
	(1) Winding speed	l (2) Coil Angle	(3)	Wind angle	(4) Traverse ratio
63.	With time, the win (1) Increases (3) Don't change	d per double traverse	(2)	drum-driven win Decreases First increases t	
64.	64. Increase in the taper angle on a sectional warping machine will require:  (1) Increase in the traverse speed  (2) Decrease in the traverse speed  (3) No change in the traverse speed  (4) Increase in the winding speed				e traverse speed
65.	Ball warping is mo	ostly preferred for:			
	(1) Terry towel	(2) Narrow fabric	(3)	Denim	(4) Poplin
66.					ried to an overall moisture
	(1) 108	(2) 120	(3)	162	(4) 226
67.	7. Size add on does not depend upon: (1) Roller hardness (2) Drying cylinder temperature (3) Size paste concentration (4) Machine speed				
68.	Limitations to the (1) The loom ecce (3) The width of the control	•	a pla (2)	in shuttle loom i	is imposed by : d checking system
69.	For a two fold inciby:	ease in reed width, th	ne pi	cking power of a	a shuttle loom will increase
	(1) 2 times	(2) 4 times	(3)	8 times	(4) 16 times
70.	If the diameter of required to twist w	a torsion rod used	in p	rojectile loom i	is doubled then the torque
	(1) 2 times	(2) 4 times	(3)	8 times	(4) 16 times
<b>71.</b>	If the diameter of a (1) d	fiber is d, its flexura (2) d <sup>2</sup>	l rig	idity is proportic ) d <sup>4</sup>	onal to:
72.	Which one of the f (1) Initial modulus (3) Tenacity at bre		perties corelates the best with handle of fabric:  (2) Yield stress  (4) Elongation at break		
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73.	In stelometer, if F is the force acti the pendulum is moved, then F is	ng on a fiber bundle and $\theta$ is the directly proportional to:	ne angle through which
	(1) $\sin \theta$ (2) $\cos \theta$		) Cot θ
74.	The vibroscope method for the account.	determination of fiber finene	ess does not take into
	(1) Length of specimen		1.
	(2) Natural frequency of specime	n	
	(3) Tension in specimen		
	(4) Tensile strength of specimen		
75.	The breaking strength load of a 3 1.24g/cm <sup>3</sup> , approximate breaking	00 mtex fiber is 110 mN. If the stress in kN/cm <sup>2</sup> is:	e density of the fiber is
	(1) 45.4 (2) 44.4	(3) 43.4 (4	) 40.4
76.	The tensile testers with strain gau	ge transducer rely on:	
	(1) Constant Rate of Traverse pr	inciple	
	(2) Constant Rate of Loading pri	nciple	
	(3) Constant Rate of Extension p	principle	
	(4) Pendulum lever principle		
77.	. Hairiness module of Uster hairing		
	<ul><li>(1) Impedance principle</li><li>(3) Capacitance principle</li></ul>	<ul><li>(2) Electrical resistance</li><li>(4) Light scattering pr</li></ul>	
78	. In cantilever bending principle, b	ending length equals overhangi	ing length (in degrees):
	(1) When $\theta = 7.1$	(2) When $\theta = 20.2$	
	(3) When $\theta = 30.3$	(4) When $\theta = 40.4$	1
79	Creep of a fibre is measured und		Vi AUE
	<ul><li>(1) Constant load</li><li>(3) Constant load and stretch</li></ul>	<ul><li>(2) Constant stretch</li><li>(4) Variable load</li></ul>	
80	<ol> <li>Based on the analysis of a trial regarded as short fibers, then t removed at comber to obtain yar</li> </ol>	he percentage of fibers by. w	
	(1) 9 (2) 10	(3) 18	4) 30
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81.	Which fiber has the	least density?				1.6	
	(1) Polyester	(2) Cotton	(3)	Viscose	(4) Polypropyl	ene	
82.	Water is added to caprolactam during the polymerization of Nylon 6. The primary is that of a						
	(1) Solvent	(2) Catalyst	(3)	Heat sink	(4) Stabilizer		
83.	As a result of tension	n annealing of therm	noplas	stic fibers:			
	(1) Crystaline orien	tation decreases					
	(2) Elongation brea	k does not change So	onic n	nodulus increas	es		
	(3) Melting point de	ecreases					
	(4) Sonic modulus i	ncreases					
84.	Polycondensation re	eaction typically occ	urs du	ue to the presen	ce of :		
	(1) One functional			Two functional			
	(3) Low temperatu	re	(4)	Addition of a c	ompound		
85.	The technique used	for producing visco	se ray	on is:			
	(1) Melt spinning	(2) Wet spinning	(3)	Dry spinning	(4) Dry-jet spir	ıning	
86.	Which of the follow	ving is a leaf fiber					
	(1) Sisal	(2) Flax	(3)	Ramie	(4) Banana		
87.	High clastic recove	ry of wool is predon	ninate	ly a result of:			
	(1) Crystaline linka	ages	(2)	Deformation of	amorphous region	ons	
	(3) Percent crystall	ine	(4)	α-β transforma	tion		
88.	The breaking extention the decreasing order	sion of flax, cotton, r is :	jute a	and wool at stan	dard testing atm	osphere ir	
	(1) Wool > Jute >	Cotton > Flax	(2)	Wool > Cotton	> Jute > Flax		
	(3) Wool $>$ Jute $>$ 1	Flax > Cotton	(4)	Wool > Cotton	> Flax > Jute		
89.	Shrinkage of cotton	fabric during wetting	ng is c	caused by:			
	(1) Extension of fil	per	(2)	Crimping of fil	per		
	(3) Swelling of fibe	er	(4)	Compression o	f fiber		

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90.	Which of the follow of the wool fiber?	Which of the following amino acids are responsible for relatively higher wet strength f the wool fiber?				
	(1) Sericin	(2) Cystine	(3) Tyrosine	(4) Threonine		
91.	During the bleachir	ng of cotton with H2C	O <sub>2</sub> , the stabilizer used	is:		
	(1) Sodium Hydro		(2) Sodium Silicat			
	(3) Acetic acid		(4) Sodium Carbon	nate		
92.	Cellulase is used for :					
	(1) Desizing					
	(2) Reducing surfa	ace tension of the wa	sh liquor			
	(3) Removing pro	tenious impurities du	ring scouring			
	(4) Bio-polishing	of cotton fabrics				
93.	Shrinkage observe	d in cotton yarn after	mercerization is a re	sult of:		
	(1) Decreased dia	meter of fibers	(2) Decreased leng	gth of fibers		
	(3) Increased dian	neter of fibers	(4) Increased diam	neter of fibers		
94.	Jet dyeing machin	es are built to be used	d with material to liqu	or ratio of :		
	(1) 1:1	(2) 1:50	(3) 1:30	(4) 1:8		
95.	The cationic dyes	The cationic dyes are commonly used for :				
	(1) Cotton	(2) Nylon	(3) Polyester	(4) Acrylic		
96.	With an increase	in the concentration	of the wetting agen	t the surface tension of the		
	scouring solution	would:				
	(1) Decrease					
	(2) Increase					
		ally and then increase				
		ally and then level of				
97.		ive dyes are characte	(2) Low affinity,	high reactivity		
	<ul><li>(1) High affinity,</li><li>(3) High affinity,</li></ul>		(4) Low affinity,			
	(5) ringil arminty,	1011 todottinj	\$ 25	-		

98.	The dye bath of solu	ubilized vat dyes has	1 7, 1 2	
	(1) Alkaline pH	(2) Neutral pH	(3) Acidic pH	(4) Reducing nature
99.	Sublimation transfe	r printing is preferre	d for:	
	(1) Polyester	(2) Wool	(3) Cotton	(4) Acrylic
100.	The most preferred	thickener for the prin	nt paste for the pigmo	ent printing in cotton :
	(1) Sodium Algina	te	(2) Emulsion	
	(3) Starch		(4) Modified cellul	lose

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Q. NO.	A	В	С	D
1	4	1	2	3
2	2	2	4	1
3	4	4	2	1
4	2	3	2	1
5	2	1	3	1
6	1	2	2	2
7	4	1	2	3
8	4	4	2	3
9	3	2	2	4
10	2	2	4	2
11	3	3	3	1
12	1	1	3	4
13	1	4	2	4
14	1	4	4	4
15	1	1	3	3
16	2	3	1	2
17	3	2	2	1
18	3	3	3	3
		3	3	1
19	4	2		
20	2		4	2
21	3	2	4	1
22	3	1	2	2
23	2	3	4	4
24	4	1	2	3
25	3	2	2	1_
26	1	2	1	2
27	2	4	4	1
28	3	2	4	4
29	3	1	3	2
30	4	2	2	2
31	2	3	1	3
32	1	1	4	1
33	3	1	4	4
34	1	1	4	4
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37	4	3	1	2
38	2	3	3	3
39	1	4	1	3
40	2	2	2	2
41	2	1	3	2
42	4	4	1	1
43	2	4	1	3
44	2	4	4	1
45	3	3	1	2
46	2	2	3	2
47	2	1	4	4
48	2	3	4	2
	2	1	1	1
49 50	4	2	3	2

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Q. NO.	A	В	С	D
51	3	3	2	3
52	1	1	1	3
53	4	1	3	2
54	4	4	1	4
55	1	1	2	3
56	3	3	2	1_
57	2	4	4	2
58	3	4	2	3
59	3	1	1	3
60	2	3	2	4
61	3	2	1	2
62	1	4	2	4
63	1	2	4	2
64	4	1	3	2
65	1	4	1	3
	3	4	2	2
66			1	2
67	4	1		2
68	4	1	4	2
69	1	1	2	
70	3	2	2	4
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72	2	4	4	1
73	4	2	2	1
74	3	2	1	4
75	1	3	4	1
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86	4	1	2	1
87	1	2	3	4
88	1	3	3	4
89	1	3	4	3
90	2	4	2	2
91	1	4	3	2
92	4	2	1	4
		4	4	2
93	4		4	1
94	4	2		
95	3	2	1	4
96	2	1	3	4
97	1	4	2	1
98	3	4	3	1
99	1	3	3	1

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