

Seat No. \_\_\_\_\_

**SUB: TEXTILE ENGINEERING (TE)**

**Time:1 Hour 30 minutes**

**Instructions:**

1. Ensure that all pages are printed.
2. Use Black ball pen only
3. Change in option is not allowed
4. There is no negative marking
5. Use of non -programmable scientific calculator is allowed

1	Elastomeric fibres are made from			
	A	Any polyurethane	B	Segmented polyurethane
	C	Polyamides	D	Polyesters
2	Which of the following is polyolefin fiber			
	A	PA	B	PAN
	C	PE	D	PET
3	Gel permeation chromatography is useful for determining			
	A	Crystallinity	B	Surface characteristic
	C	Orientation	D	Molecular weight
4	Absorption regain percentage of mercerized cotton is			
	A	Less than cotton	B	More than cotton but less than wool
	C	More than wool	D	Less than wool and cotton
5	By introducing microgrooves in polyester filament			
	A	Moisture absorption improves	B	Dye penetration improves
	C	Handle improves	D	All of the above
6	The effect of high temperature annealing treatment on breaking strength of nylon 66 filament is			
	A	Strength decreases	B	Strength increases
	C	Strength first increases then decreases	D	Strength first decreases then increases
7	The chemical used in the steeping process in the manufacture of viscose rayon is			
	A	Sodium hydroxide	B	Calcium Hydroxide
	C	Nitric acid	D	Carbon disulphide
8	The carry bags used recently (in place of plastic bags) are produced commonly using			
	A	Needle punching	B	Spun lacing
	C	Spun bonding	D	Chemical bonding
9	Limiting Oxygen Index test is carried out to check efficiency of			
	A	Wash & wear finish	B	UV protective finish
	C	Flame retardant finish	D	Water proofing
10	Nylon 6 polymer is produced from caprolactum. The catalyst used in the process is			
	A	Magnesium Acetate	B	Cobalt Acetate
	C	Acetic Acid	D	Water
11	Which of the following modes of heat transfer takes place during through-air thermal bonding process?			
	A	Conduction	B	Convection
	C	Radiation	D	None of the above
12	Polyethylene terephthalate crystallizes slowly due to the			
	A	Stiffness of chain	B	Flexibility of chains

	C	Hydrogen bonding between chains	D	Higher nucleation density
13	Statistical analysis of variation in yarn count can be carried out by			
	A	Binomial Distribution	B	Poisson Distribution
	C	Normal Distribution	D	Chi – Square Distribution
14	Polypropylene is not preferred for agro textile as			
	A	It is very expensive	B	It has poor elongation
	C	It has poor UV protection	D	It does not have enough strength
15	The combing force increase with			
	A	Decrease in mass/unit length as lap	B	Decrease in nips/minute
	C	Decrease in needles/cm on half lap	D	Decrease in pre-combing draft
16	Which of the following types of fibres tend to stay in core of the ring spun yarn?			
	A	Short Fibres	B	Course Fibres
	C	Long Fibres	D	More crimped fibres
17	Combing process is			
	A	Efficient in removing trailing hooks	B	Efficient in removing leading hooks
	C	Efficient in removing both types of hooks	D	Not efficient in removing hooks
18	With increase in draft, drafting force			
	A	Continuously rises	B	Continuously decreases
	C	Does not change at all	D	Increase first and then decrease
19	The Spinning tension variation show periodicity because of			
	A	Twist fluctuation	B	Ring – traveller friction
	C	Air drag	D	Winding on diameter change
20	In ring spinning coriolis force acts in			
	A	Break draft zone	B	Main draft zone
	C	Spinning zone	D	Balloon zone
21	In case of two-package feed TFO process			
	A	The yarn from the bottom package will be subjected to higher tension	B	The yarn from the top package will be subjected to higher tension
	C	Yarns from both the packages will be subjected to higher tension	D	Yarns from both the packages will be subjected to lower tension
22	Which of the following is wrong?			
	A	CV% of the tenacity of the doubled yarn is always less than that of component single yarns	B	CV% of the extensibility of the doubled yarn is always less than that of component single yarns
	C	Fabrics produced with doubled yarns have better cover than the fabrics produced with single yarns	D	Wear resistance of the doubled yarns is poorer than that of single yarns
23	Licker-in teeth height for synthetic fibres are			
	A	Greater than that of cotton	B	Same as that of cotton
	C	Shorter than that of cotton	D	Same but point density is less
24	The purpose of doubling in draw frame is to			
	A	Make the sliver thicker	B	Improve sliver uniformity
	C	Improve parallelization of fibres	D	Reduce fibre hooks
25	Strength of the rotor spun yarns is higher than			
	A	Ring spun yarn	B	Air jet yarn
	C	DREF yarn	D	Solospun yarn
26	Which of the following fancy yarns is produced through weaving			

	A	Covered Yarn	B	Chenille Yarn
	C	Fasciated Yarn	D	Loop Yarn
27	In an automatic shuttle loom working with under pick mechanism, the velocity of shuttle can be varied by			
	A	Increasing the length of check strap	B	Decreasing the length of check strap
	C	Changing the position of lug strap	D	By adjusting the swell
28	REICOFIL is related with			
	A	Needlepunching	B	Spunbonding
	C	Meltblowing	D	Spunlacing
29	Speed of a tappet shaft on a shuttle loom weaving a design repeating on 3 ends by 4 picks will be			
	A	Same as crank shaft	B	One half of crank shaft
	C	One third of crank shaft	D	One fourth of crank shaft
30	Statistical analysis of report of defective cloth rolls can be carried out by			
	A	Binomial Distribution	B	Poisson Distribution
	C	Normal Distribution	D	Chi – Square Distribution
31	For 60s reed count(stockport) and 3 ends per dent denting, the total ends in the 160 cm width will be			
	A	5760	B	5670
	C	5067	D	5076
32	For weaving a plain woven fabric with 4 heald shafts and skip draft, how many minimum cams are needed?			
	A	6	B	4
	C	3	D	2
33	In a flat bed knitting machine, the loop length is controlled by			
	A	Raising cam	B	Clearing cam
	C	Stitch cam	D	Guard cam
34	Wind is defined as			
	A	Number of coils per traverse	B	Number of coils per double traverse
	C	Number of grooves in the cylinder	D	Winding speed in m/min
35	Dry steaming of warp sheet before its entry in to size box results in			
	A	Increased sizing speed	B	Reduced breakages at sizing
	C	Effective size penetration	D	Reduced number of drying cylinders
36	The change in twist of yarn during an over end unwinding is			
	A	More in case of smaller diameter package	B	More in case of larger diameter package
	C	Not dependent on package diameter	D	None of the above
37	For displacement function of rapier handling very weak yarn			
	A	Sinusoidal motion is better than cycloidal	B	Modified trapezoidal motion is better than cycloidal
	C	Sinusoidal motion is better than modified trapezoidal	D	Cycloidal motion is better than modified trapezoidal
38	Maximum tear could be achieved if			
	A	Yarn to yarn friction is high and floats in the weave are more	B	Yarn to yarn friction is high and floats in the weave are less
	C	Yarn to yarn friction is low and floats in the weave are more	D	Yarn to yarn friction is low and floats in the weave are less

39	Which type of projectile has highest value of length and width			
	A	D1	B	D2
	C	D12	D	K3
40	Which of the following statements is correct?			
	A	The use of shorter fibres in wet-laid process demands more volume of water	B	The use of longer fibres in wet-laid process demands more volume of water
	C	The length of fibres does not play any role on volume of water in wet laid	D	All of them
41	Length of 0.9 kg of 90 denier polyester yarn is			
	A	0.9 km	B	9 km
	C	90 km	D	900 km
42	Which of the following yarns is the finest?			
	A	10s Ne	B	59 Tex
	C	16 Nm	D	532 Denier
43	A nylon multifilament yarn has a packing factor of 0.9. What will be the specific volume?			
	A	1.026	B	1.062
	C	1.260	D	1.602
44	Diameter of a 50 denier polyester yarn (in cms) approximately will be			
	A	0.005	B	0.01
	C	0.015	D	0.02
45	The principle which cannot be used to measure hairiness of yarn is			
	A	Capacitance	B	Image analysis
	C	Photoelectric	D	Light scattering
46	The vibroscope method for determination of fibre fineness does <b>NOT</b> take into account			
	A	Length of specimen	B	Natural frequency of specimen
	C	Tension in specimen	D	Tensile strength of specimen
47	The area under the stress-strain curve of fibre represent its			
	A	Toughness	B	Ductility
	C	Tenacity	D	Elongation
48	Uniformity ratio is			
	A	50% span length / 2.5% span length	B	2.5% span length / 50% span length
	C	Mean length / upper half mean length	D	Upper half mean length / Mean length
49	Tear strength of a fabric is higher for			
	A	Plain Weave	B	2/1 twill
	C	3/1 twill	D	5 end satin
50	Which method is useful for examining the non-periodic faults in the yarn?			
	A	Spectrogram	B	Spectrophotometer
	C	V-L curve	D	Any one of the above
51	In commercial fabric stiffness tester, the fabric length is measured when it is bent at			
	A	40.5 deg	B	41.5 deg
	C	45.1 deg	D	54.1 deg
52	Working principle of a pendulum lever tensile tester is based on constant rate of			
	A	Loading	B	Extension
	C	Traverse	D	Stress
53	Yarn strength for shorter gauge length is comparatively			
	A	Higher	B	Lower

	C	Sometimes lower, sometimes higher	D	Same
54	If the 50 % span length of a cotton fibre is 13.5 mm and the uniformity ratio is 45 %, then 2.5 % span length of this fibre in mm would be			
	A	10	B	15
	C	30	D	35
55	CSP of yarn is equal to the product of			
	A	Yarn tex and lea strength (N)	B	Yarn count (Ne) and lea strength (kgf)
	C	Yarn tex and lea strength (lbf)	D	Yarn count (Ne) and lea strength (lbf)
56	The yarn strength expressed as RKM is equivalent to			
	A	Grams per denier	B	Grams per tex
	C	C S P	D	Breaking load in grams
57	A yarn with 'n' fibres in its cross section will have limiting CV(%) as			
	A	$\sqrt{n}$	B	$100 \sqrt{n}$
	C	$100 / n$	D	$100 / \sqrt{n}$
58	On examination of 200 cotton fibres, 120 normal, 60 semi mature and 20 dead fibres are observed. Maturity ratio of this cotton is			
	A	1.20	B	1.00
	C	0.95	D	0.90
59	Spin finish contains			
	A	Lubricant	B	Whitener
	C	Antioxidant	D	Delustrant
60	A polyester/Cotton blended fabric can be dyed to solid shade using a combination of			
	A	Disperse/Vat dyes	B	Vat and acid dyes
	C	Acid and basic dyes	D	Reactive and direct dyes
61	Which technique is more useful to separate salts and organic compounds from textile effluents?			
	A	Reverse Osmosis	B	Micro filtration
	C	Ultra-filtration	D	Nano filtration
62	An example of a coagulant used in textile effluent treatment is			
	A	Activated carbon	B	Ferrous sulphate
	C	Hydrogen peroxide	D	Sodium chloride
63	Softener reduces the bending rigidity of fabrics by decreasing			
	A	Inter-fibre and inter-yarn friction	B	Modulus of the fibres
	C	Glass transition temperature of the fibres	D	Packing coefficient of yarns
64	Bleaching of cotton using bleaching powder, is carried out at			
	A	Room temperature	B	50-60° C
	C	90° C	D	At boil
65	Which of the following is a batch wise, open width machine?			
	A	Jet dyeing machine	B	Winch machine
	C	Jigger machine	D	Open soaper
66	Out of following, which is not a surfactant			
	A	Reducing agent	B	Wetting agent
	C	Detergent	D	Dispersing agent
67	Crock meter is used to measure following property of a dyed fabric.			
	A	Rubbing fastness	B	Perspiration fastness

	C	Laundry fastness	D	Fastness to gas fading
68	Pad-sizing/ox process is developed mainly to			
	A	Reduce the water consumption	B	Reduce the dye consumption
	C	Reduce the reducing agent consumption	D	Increase the speed of the process
69	A plain single jersey fabric			
	A	Exhibits curling from technical back to technical front along course line	B	Exhibits curling from technical back to technical front along wale line
	C	Exhibits curling from technical front to technical back along wale line	D	Exhibits curling from technical back to technical front along course line and curling from technical front to technical back along wale line
70	In context of effluent discharge, BOD means			
	A	Bio-oxidative degradation	B	Bio oxygen distress
	C	Biological oxygen demand	D	Bacteria observed on disc
71	“Roping” term is related with			
	A	Rope Dyeing	B	Sewing
	C	Technical Textile	D	All of the above
72	Statistical analysis of end breaks in ring frame can be carried out by			
	A	Binomial Distribution	B	Poisson Distribution
	C	Normal Distribution	D	Chi – Square Distribution
73	Assuming race-tracked cross section of threads, the ratio of major to minor diameters of yarns for a jammed plain woven fabric will be			
	A	1.3	B	3.1
	C	0.31	D	0.13
74	In the context of thermal bonding of nonwoven web, the statement which is <b>not</b> true is			
	A	A thermoplastic component has to be present in the web	B	Heat is applied until the thermoplastic component melts
	C	The polymer flows by surface tension and capillary action to fibre cross over points	D	Chemical reaction takes place
75	Typical examples of Non implantable materials, Extracorporeal devices, Implantable materials and Hygiene products respectively are			
	A	Artificial Tendon, Compression Bandage, Dialyser, and Incontinence Diaper	B	Dialyser, Compression Bandage, Artificial Tendon and Incontinence Diaper
	C	Incontinence Diaper, Compression Bandage, Dialyser and Artificial Tendon	D	Compression Bandage, Dialyser, Artificial Tendon and Incontinence Diaper
76	In fully relaxed state, the loop shape factor ( defined as a ratio of courses per unit length to wales per unit length) of a plain weft knitted cotton fabric will be approximately			
	A	0.3	B	1.3
	C	4.2	D	5.5
77	The most commonly used seam for outer or inner leg seam of denim trouser is			
	A	French	B	Bound
	C	Lap Felled	D	Piped
78	Class 500 stitches are also called as			

	A	Multithread chain stitches	B	Over edge stitches
	C	Covering stitches	D	Chain stitches
79.	The property that Kawabata Evaluation System does not measure is			
	A	Shear rigidity	B	Bending rigidity
	C	Compressional resilience	D	Tensile strength
80.	As per 4 point fabric grading system, how many points will be assigned to a warp defect of 4 inches?			
	A	1	B	2
	C	3	D	4
81.	The eigen values for the matrix $A^{-2}$ is _____, where $A = \begin{bmatrix} 2 & 3 & 4 \\ 0 & 2 & 5 \\ 0 & 0 & -3 \end{bmatrix}$			
	A	$\frac{1}{2}$	B	$\frac{1}{4}$
	C	$-\frac{1}{2}$	D	$-\frac{1}{4}$
82.	Test the consistency of the system of equations given below: $x + y + z = 0$ $3x + y - z = 0$ $-2x + y + z = 0$			
	A	There is no solution	B	There is unique solution
	C	There are infinitely many solutions	D	None of these
83.	The inverse of the matrix $A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & -4 \end{bmatrix}$ is			
	A	$\begin{bmatrix} -4 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	B	$\begin{bmatrix} 4 & 0 & 0 \\ 0 & -2 & 0 \\ 0 & 0 & -1 \end{bmatrix}$
	C	$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0.5 & 0 \\ 0 & 0 & -0.25 \end{bmatrix}$	D	$\begin{bmatrix} -1 & 0 & 0 \\ 0 & -0.5 & 0 \\ 0 & 0 & 0.25 \end{bmatrix}$
84.	$\lim_{x \rightarrow \infty} \frac{\log x}{x^n} = \text{_____}, \text{ where } n > 0$			
	A	0	B	1
	C	$e^x$	D	$n$
85.	Which of the following is a stationary point of the function $x^3 + xy^2 + 21x - 12x^2 - 2y^2$			
	A	(1, 0)	B	(0,1)
	C	(1,1)	D	(0,0)
86.	If $u = \sin(x + y)$ then find $\frac{\partial u}{\partial y} = \text{_____}$			
	A	$\sin x$	B	$\cos(x + y)$
	C	$\tan(x + y)$	D	$\cos x$
87.	If $\vec{F} = 2i + 0j$ , calculate the flux of $\vec{F}$ through the line segment from (3,0) to (0,3).			

	A	0	B	1
	C	3	D	6
88.	The general solution of the differential equation $(D^2 - 2D + 1)y = 0$ is _____			
	A	$y = e^x + ce^x$	B	$y = c_1 e^x + c_2 e^x$
	C	$y = c_1 e^x + c_2 x e^x$	D	None of these
89.	If Laplace transform of $f(t)$ is $F(s)$ then what is the Laplace transform of $e^{at} f(t)$ ?			
	A	$e^{as} F(s)$	B	$e^{-as} F(s)$
	C	$F(s-a)$	D	$F(s+a)$
90.	The inverse Laplace transform of $\frac{1}{s}$ is _____.			
	A	0	B	1
	C	$t$	D	$t^2$
91.	If $A$ and $B$ are independent events, then which of the following is true?			
	A	$P(A \cup B) = P(A) + P(B)$	B	$P(A \cap B) = P(A) + P(B)$
	C	$P(A \cup B) = P(A)P(B)$	D	$P(A \cap B) = P(A)P(B)$
92.	Which of the following method is not being used to solve differential equation numerically?			
	A	Euler's method	B	Runge-Kutta method
	C	Taylor's method	D	Simpson's method
93.	Which of the following is true for $f(z) = z^3$ ?			
	A	Continuous and differentiable	B	Continuous but not differentiable
	C	Differentiable but not continuous	D	Neither differentiable nor continuous
94.	Expansion of $f(z) = -\frac{1}{(z-1)(z-2)}$ in the region $ z  < 1$ is _____			
	A	$\frac{1}{z} + \frac{1}{z^2} + \frac{1}{z^3} + \dots + \frac{1}{2} + \frac{z}{4} + \frac{z^2}{8} + \dots$	B	$-\frac{1}{2} - \frac{3}{4}z - \frac{7}{8}z^2 - \dots$
	C	$-\frac{1}{z} - \frac{3}{z^3} - \dots$	D	None of these
95.	Ten bulbs are drawn successively with replacement from a lot containing 10% defective bulbs. The probability that there is at least one defective bulb is _____			
	A	$\left(\frac{1}{10}\right)^{10}$	B	$\left(\frac{9}{10}\right)^{10}$
	C	$1 - \left(\frac{1}{10}\right)^{10}$	D	$1 - \left(\frac{9}{10}\right)^{10}$
96.	Evaluate $\oint_C \frac{4-3z}{z(z-1)(z-2)} dz$ where $C$ is the circle $ z  = \frac{3}{2}$ .			
	A	0	B	1
	C	$2\pi$	D	$2\pi i$
97.	For the function $\cosh\left(\frac{1}{z}\right)$ which of the following is true?			



	A	$z = 0$ is essential singularity	B	$z = 0$ is zero of order 2
	C	$z = i$ is zero of order 3	D	None of these
98.	In usual notations, for given probability distribution if $Var(X) = 3$ then $Var(2X + 9) = \underline{\hspace{2cm}}$			
	A	6	B	12
	C	21	D	None of these
99.	Use Euler's method to obtain an approximate value of $y(0.4)$ for the equation $y' = x + y$ with $y(0) = 1$ and $h = 0.1$			
	A	1.62	B	1.72
	C	1.82	D	1.92
100.	Find the general solution of the differential equation $(y \cos x + \sin y + y)dx + (\sin x + x \cos y + x)dy = 0$			
	A	$y \sin x + x \sin y + xy = c$	B	$x \sin x + y \sin y + xy = c$
	C	$y \sin x + x \sin y = c$	D	None of these

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