

This Question Booklet contains  
12 printed pages

PGTE

A  
Seal Sticker

Total Marks : 100  
Time : 100 Minutes

Question  
Booklet  
Code :

A

Candidate's  
Seat No. :

Candidate's Signature \_\_\_\_\_ Block Supervisor's Signature \_\_\_\_\_

**DO NOT OPEN QUESTION BOOKLET UNTIL INSTRUCTED.**

INSTRUCTIONS FOR CANDIDATE:

1. Check Number printed on your OMR SHEET and Question Paper with your SEAT No. before answering the questions. Consult block supervisors in case the above mentioned numbers do not match with your seat number.
2. There are total 100 questions. For answer of each question A, B, C, D, E options are given in OMR SHEET. In OMR SHEET, there is "E" option. "E" option is for "Not Attempted". If candidate do not wish to answer the question he/she should select "E" option (Not Attempted). All questions are compulsory.

For Example:

Which state of India has the longest sea shore ?

A ☐ B ☐ C ☒ D ☐ E ☐

(A) Maharashtra (B) Tamilnadu  
(C) Gujarat (D) Andhra Pradesh

In this example, the right answer is (C). Therefore, the Circle of (C) has been darkened (encoded). Candidate should not give the answer "Gujarat" in writing.

**The options once darkened/answered by candidate cannot be changed.**

3. Candidates are not permitted to leave examination hall during examination.
4. Candidates must strictly enter SEAT NO. in the designated space provided in OMR SHEET as well as Question Paper neatly as soon as they receive the OMR SHEET & Question Paper.
5. Candidates must not write name or put any identification sign/symbol on OMR SHEET. In such case strict disciplinary action will be taken against candidate & will be considered disqualified/ineligible. Only Seat No. must be

entered at designated space provided in OMR SHEET.

6. Both, Candidate's & Supervisor's signature must be done on Certificate of OMR SHEET. Unsigned OMR SHEET would not be considered for evaluation.
7. Candidates are not permitted to use or carry with them any kind of literature, guide, hand written notes, or printed books, mobile phone, pagers, smart watches, camera or any electronic gadgets to examination hall.
8. Use of only Non-scientific / Non-programmable calculator shall allow during examination.
9. Candidates are not permitted to talk/discuss in the Examination Hall. Any candidate found violating supervisor's instructions will be disqualified.
10. Candidates must fully darken circle A, B, C, D and E accordingly with Blue / Black ball pen. If answers are marked with any other coloured ball pen, pencil, white ink (whitner), any corrections are done by candidate by means of blade or rubber or whitner will not be considered for evaluation.
11. Candidates may carry QP with them after Examination.
12. **For correct answer 1 (One) marks will be given.**

**If candidate gives more than one option as answer for one question in answer sheet (OMR SHEET), or gives wrong answer then the candidate will be allotted Zero (0) marks.**

**If candidate does not want to answer a particular question and marks (E) or leave the option without encoding on OMR sheet, then no minus marks will be given.**

Submit the OMR SHEET to the block supervisor after completion of examination without fail before leaving examination hall, failure to do so will result in disqualification of the candidature for the examination and disciplinary action will be taken against such candidate.

1. Which of the following fibre has highest modulus : ( $\text{gftex}^{-1}$ )  
 (A) Polyester (B) Silk  
 (C) Viscose (D) Acrylic
2. Technique used for determination of average molar masses of polymers is :  
 (A) X-ray diffraction (B) GPC  
 (C) Infra-red Spectroscopy (D) TGA
3. Cross-sectional shape of Viscose fibre is :  
 (A) Serrated (B) Elliptical  
 (C) Circular (D) Oval
4. Which fibre has excellent Crease resistance ?  
 (A) Cotton (B) Silk  
 (C) Polyester (D) Viscose
5. Birefringence of a fibre is the measure of  
 (A) Density (B) Orientation  
 (C) Modulus (D) Crystallinity
6. For nylon & polyester quench air temperature of approximately \_\_\_\_\_ °C is generally used  
 (A) 22 to 24 (B) 20 to 22  
 (C) 18 to 20 (D) 24 to 26
7. A polyamide synthesized from an amino acid or a lactum is termed as :  
 (A) ABC type (B) AABB type  
 (C) A type (D) AB type
8. Continuous filament yarns in which the constituent filaments have not been twisted or textured & remains like glass rods is called :  
 (A) Flat yarn (B) Intermingled yarn  
 (C) Textured yarn (D) Twisted yarn
9. During melt spinning process, fluid flow occurs  
 (A) In the spinneret channel  
 (B) In the upper part of the spinline  
 (C) William confined wall of the channel  
 (D) During quenching
10. In a Turbo Stapler, where exactly the Turbo fly occurs :  
 (A) In Crimper  
 (B) In the breaking zone mainly at the breaker bars  
 (C) In feed rollers  
 (D) At Rebriker
11. For modern blow room line, Cleaning efficiency in cottons with high trash content is about:  
 (A) 60% (B) 50%  
 (C) 40% (D) 70%
12. The waste in cards is normally about \_\_\_\_\_ % depending upon the type of Cards & Cotton  
 (A) 8 - 9 (B) 7 - 8  
 (C) 10 - 20 (D) 6 - 7

13. Normally Comber waste is extracted in the range of \_\_\_\_\_% to \_\_\_\_\_% for Hosiery counts.  
 (A) 12 to 15 (B) 15 to 18  
 (C) 18 to 21 (D) 21 to 12
14. Differential motion is a part of :  
 (A) Ring frame (B) Scutcher  
 (C) Speed frame (D) Carding
15. In Comber leading hooks are removed by:  
 (A) Bottom Comb (B) Nipper  
 (C) Top Comb (D) Cylinder
16. If draft of 30 produces 60's yarn on Ring frame, then what would be the hank of roving?  
 (A) 3 (B) 1.8  
 (C) 2 (D) 2.8
17. Which one of the following is not an element of Comforspin by Richter?  
 (A) Perforated drum (B) Magnetic Compactor  
 (C) Suction insert (D) Air guide
18. Among the new spinning technologies introduced, which spinning established itself as a worthy alternative to Ring spinning in the Coarse & medium Count range?  
 (A) Rotor Spinning (B) Wrap Spinning  
 (C) Friction Spinning (D) Air Jet Spinning
19. Among all 100% staple fibre spinning systems, which of the following produces the strongest yarn from various types of fibre & their blends ?  
 (A) Rotor Spinning (B) Air - Jet Spinning  
 (C) Ring Spinning (D) Friction Spinning
20. When two or more strands or yarns are twisted together, they are designated as :  
 (A) Ply yarns (B) Doubled yarns  
 (C) Cabled yarns (D) Compound yarns
21. In case of Vortex yarn major influence on yarn structure will be of:  
 (A) Feed ratio (B) Distance between front roller & spindle  
 (C) Spindle (D) Nozzle pressure
22. Which of the following produce yarns with wrapper fibres  
 (A) TFO (B) Dref II  
 (C) Ring Spinning (D) Rotor Spinning
23. To reduce the possibility of high tension at the start of winding the yarn onto bare ring bobbin, the ratio of diameter of bobbin to ring diameter is kept at :  
 (A)  $< 0.5$  (B)  $\leq 0.5$   
 (C)  $\geq 0.5$  (D) 0.5
24. How much contraction occurs in soft twist yarn because of the helical arrangement of the fibres?  
 (A) 2 - 3% (B) 1 - 2%  
 (C) 3 - 4% (D) 4 - 5%

25. Tracer fibre technique has been developed by :  
 (A) Morton & Woods (B) Morton & Yen  
 (C) Yen & Goswami (D) Hearle
26. Packing fraction,  $\theta$  for staple fibres ranges between :  
 (A)  $0.6 \leq \phi \leq 0.65$  (B)  $0.5 \leq \phi \leq 1.0$   
 (C)  $1.0 \leq \phi \leq 1.5$  (D)  $0.95 \leq \phi \leq 1.0$
27. Yarn waste during splicing a break/cop change is mostly in the range of :  
 (A) 3.4 - 7.0 m (B) 5.0 - 6.0 m  
 (C) 4.0 - 8.0 m (D) 10.0 - 12.0 m
28. Optical clearers function with \_\_\_\_\_ as the reference.  
 (A) Diameter (B) Mass  
 (C) Length (D) Colour
29. Optimum size pick up of single synthetic blend yarn is :  
 (A) 4 - 5% (B) 14 - 15%  
 (C) 10 - 15% (D) 5 - 10%
30. Number of broken yarns at the creel, sow-box or drying cylinders are counted & calculated for :  
 (A) 1 m / 3 ends (B) 10 m / 30 ends  
 (C) 1000 m / 3000 ends (D) 100 m / 300 ends
31. When the squeeze roller hardness reaches the level of \_\_\_\_\_ shore hardness, the roller should be sent for buffing  
 (A) 55° (B) 45°  
 (C) 65° (D) 75°
32. Flat bed knitting machine can have  
 (A) Only one bed (B) One or two beds  
 (C) Only two beds (D) Three or more beds
33. When each succeeding coil is placed exactly on previously laid coil in a package, it is called as :  
 (A) Ballooning (B) Ribboning  
 (C) Stitching (D) Doubling
34. Cones meant for dyeing has taper angle of :  
 (A) 4° 20' (B) 1° 51'  
 (C) 5° 57' (D) 4° 30'
35. Climax dobby would normally produce:  
 (A) Bottom closed shed (B) Semi open shed  
 (C) Centre closed shed (D) Open shed
36. In case of Air jet weaving machine having weaving cycle of 100 ms, the duration available for weft insertion would be:  
 (A) 100 ms (B) 50 ms  
 (C) 60 ms (D) 15 ms

37. The setting of the swell & the check strap should be such that the shuttle does not rebound more than :  
 (A) 15 mm (B) 10 mm  
 (C) 1.5 mm (D) 5 mm
38. For high quality warping, static charges must be kept below \_\_\_\_\_ volts.  
 (A) 10 (B) 1,000  
 (C) 100 (D) 10,000
39. Profiled reed is used in :  
 (A) Rapier machine (B) Air Jet Loom  
 (C) Water Jet Loom (D) Projectile Loom
40. Which Rapier weaving machines are standard in the industry ?  
 (A) Single Rigid Rapier (B) Double Rigid Rapier  
 (C) Double Flexible Rapier (D) Single Flexible Rapier
41. In case of single phase machines the highest output is provided by:  
 (A) Rapier weaving machine (B) Projective weaving machine  
 (C) Water Jet weaving machine (D) Air Jet weaving machine
42. In M 8300 Multi phase weaving machine the filling insertion is:  
 (A) 50 m/min (B) 5000 m/min  
 (C) 500 m/min (D) 5 m/min
43. Only sacks and are woven tubes on :  
 (A) Projectle weaving machines (B) Air Jet weaving machines  
 (C) Plain Power Loom (D) Circular Weaving machines
44. Components of latch needle are :  
 (A) Latch, butt, hook, stem (B) Butt, hook, eye, stem  
 (C) Butt, bed, latch, stem (D) Latch, butt, hook, eye
45. Which of the following is not a weft knitted structure :  
 (A) Single Jersey (B) Interlock  
 (C) Rib (D) Underlap
46. Length of yarn extending unbound over a number of wales with which it should be intermeshed is called :  
 (A) Float (B) Crack  
 (C) Tucking (D) Dropped stitch
47. \_\_\_\_\_ indicates the relative tension of a plain - weft knitted structure.  
 (A) Yarn input tension (B) Tightness factor  
 (C) Knitting tension (D) Loop length
48. To produce a pair of Denim jeans, water usually used is :  
 (A) 76 litres (B) 7600 litres  
 (C) 760 litres (D) 7.6 litres
49. Stencil is used for :  
 (A) Dyeing (B) Scouring  
 (C) Shearing (D) Printing

50. Auxiliary agent preventing the agglomeration of individual dye particles during dyeing is known as :
- (A) Antiforming agent (B) Accelerator  
(C) Levelling agent (D) Dispersing agent
51. The lack of durability to laundering & dry cleaning limits the use of :
- (A) Paraffin - based repellants (B) Stearic - acid - melamine repellants  
(C) Silicone water repellants (D) Fluorocarbon - based repellants
52. The key ingredient of durable flame retardants for Cellulose is :
- (A) THPC (B) Ammonium bromide  
(C) Diammonium Phosphate (D) Ammonium Sulfamate
53. The process or machine effective in bio - finishing is :
- (A) Pad - batch process (B) Jig dyeing machine  
(C) Package dyeing machine (D) Open - width washer
54. The most significant contributor to climate change issues is:
- (A) CO<sub>2</sub> (B) CH<sub>4</sub>  
(C) N<sub>2</sub>O (D) HFC<sub>s</sub>
55. In a composite textile plant, the process which consumes maximum energy is :
- (A) Ring Spinning (B) Weaving preparation  
(C) Humidification (D) Wet Processing
56. Which of the following is not a Compound weave?
- (A) Gauze & Leno (B) Warp back  
(C) Sateen (D) Double cloth
57. Which of the following produces Open fabric
- (A) Hopsack (B) Mockleno  
(C) Crepe (D) Twill
58. \_\_\_\_\_ is a class of moleskin fabric.
- (A) Twill back velveteen (B) Corduroy  
(C) Warp Pile (D) Plain back Velveteen
59. Reed width depends on:
- (A) Woft Crimp (B) Warp Crimp  
(C) Cloth length (D) Weft count
60. The gauge length in Presseley Fibre straight Test is :
- (A) 1/4" & 1/8" (B) 1/4"  
(C) 1/2" (D) Zero & 1/8"
61. Which of the following is not a strength test of fabric?
- (A) Bursting (B) Tensile testing  
(C) Tearing (D) Drape
62. Which machine is responsible for fibro individualization to single fibre extent?
- (A) Ring frame (B) Blow room  
(C) Card (D) Comber

63. To analyze the test results for significance in differences of the mean values of the measured properties following is used:  
 (A) Analysis of variance (ANOVA) (B) Post hoc tests  
 (C) both (A) and (B) (D) None of the above
64. In Polyester Cotton blend, dye used for dyeing of polyester component of the blend is :  
 (A) Disperse dye (B) Sulphur dye  
 (C) Vat dye (D) Reactive dye
65. What will be the number of ends per inch in a reed of 3/80s stockport ?  
 (A) 120 (B) 80  
 (C) 40 (D) 240
66. If Jacquard capacity is 400, EPI & PPI are 80 & 75 respectively, the width of the Jacquard design will be?  
 (A) 6 inch (B) 5 inch  
 (C) 18 inch (D) 3 inch
67. Suitable test for Parachute fabric is:  
 (A) Tensile strength (B) Tearing strength  
 (C) Bursting strength (D) Tensile grab strength
68. In finishing final crimp distribution of fabric is done on:  
 (A) Calendaring (B) Washing  
 (C) Stentering (D) Bleaching
69. 60's reed will have \_\_\_\_\_ than 44's reed  
 (A) More ends/inch (B) More picks/inch  
 (C) Less ends/inch (D) Less picks/inch
70. Silk is usually printed with :  
 (A) Acid dye (B) Vat dye  
 (C) Reactive dye (D) Chrome dye
71. The thickening agent used for printing are:  
 (A) Vat dyes (B) Resins  
 (C) Naphthol (D) Alginates
72. Background colour & design, both are printed in one operation by:  
 (A) Spray Printing (B) Blotch Printing  
 (C) Transfer Printing (D) Screen Printing
73. Sample size in testing of Textile Material refers to:  
 (A) Dimension of sample (B) Number of samples  
 (C) Weight of the Sample (D) All of the above
74. The lea strength of a 60's yarn is 80 lbs. What is its CSP?  
 (A) 120 (B) 1200  
 (C) 900 (D) 4800
75. The Energy required to break the specimen is known as :  
 (A) Work factor (B) Work of Rupture  
 (C) Yield Point (D) Work Point

76. Trapezoid Test is a method of testing fabrics for :  
 (A) Tensile strength (B) Bursting strength  
 (C) Tearing Strength (D) Drape
77. The Fibrograph gives result in :  
 (A) Mean length (B) Effective length  
 (C) Upper Half mean length (D) None of the above
78. Which of the following yarn will be comparatively more hairy ?  
 (A) Nylon filament yarn (B) Polyester fragment yarn  
 (C) Polypropylene filament yarn (D) Cotton Spun yarn
79. A numerical value used to indicate how widely individuals in a group vary is :  
 (A) Standard variation (B) Arithmetic mean  
 (C) Coefficient of variation (D) Standard error of the mean
80. French chalk as a sizing ingredient performs the function of  
 (A) Lubricant (B) Weightening agent  
 (C) Adhesive (D) Antiforming agent
81. The horizontal tangents of a cubic polynomial  $f(x) = \frac{x^3}{3} - 3x$  between  $[-3, 3]$  are at  
 (A)  $x = \pm 1$  (B)  $x = 0$   
 (C)  $x = \pm\sqrt{2}$  (D)  $x = \pm\sqrt{3}$
82. The differential equation  $Mdx + Ndy = 0$ , where  $M$  and  $N$  are functions of  $x$  &  $y$  is an exact equation if  
 (A)  $\frac{\partial M}{\partial x} = -\frac{\partial N}{\partial y}$  (B)  $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial y}$   
 (C)  $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$  (D) None of above
83. If  $g(z)$  &  $h(z)$  are analytic functions then  
 (A)  $\frac{g(z)}{h(z)}$  is analytic, whenever  $h(z) \neq 0$  (B)  $\frac{g(z)}{h(z)}$  is analytic, whenever  $g(z) \neq 0$   
 (C)  $\frac{g(z)}{h(z)}$  is always analytic (D) None of above
84. Newton - Raphson method is also known as  
 (A) Tangent method (B) Chord Method  
 (C) Diameter Method (D) Secant Method
85. If a matrix is given by  $A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 4 & 5 \\ 0 & 0 & 6 \end{bmatrix}$  the determinant of  $A^{-1}$  is  
 (A) 11 (B) 24  
 (C) 1/24 (D) 1/11



86. In rolling two fair dice, what is the probability of obtaining a sum greater than 3 but not exceeding 6?
- (A)  $\frac{1}{6}$  (B)  $\frac{1}{3}$   
(C)  $\frac{1}{2}$  (D)  $\frac{1}{4}$
87. The eigenvalues of the matrix  $A = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$  are
- (A) 1, 1 (B) 2, 2  
(C) 3, 3 (D) 0, 2
88. A necessary & sufficient condition that line integral  $\oint_C \vec{F} \cdot d\vec{r} = 0$  in every close curve C is
- (A)  $\text{div } \vec{F} \neq 0$  (B)  $\text{curl } \vec{F} \neq 0$   
(C)  $\text{curl } \vec{F} = 0$  (D)  $\text{div } \vec{F} = 0$
89. A box contains 5 red & 4 white marbles. Two marbles are drawn successively from the box. Without replacement and it is noted that second one is white. What is the probability that the first is also white ?
- (A)  $\frac{3}{8}$  (B)  $\frac{4}{5}$   
(C)  $\frac{5}{4}$  (D)  $\frac{8}{3}$
90. Simpson's 1/3 rule gives exact value of the integral when the integrand is
- (A) Linear function (B) Quadratic function  
(C) Cubic function (D) Polynomial of degree other than above
91. The differential equation  $y = px + f(p)$  where  $p = \frac{dy}{dx}$  is known as
- (A) Clairaut's equation (B) Wave equation  
(C) Weierstrass equation (D) None of above
92. The value of  $\oint_C (5z^4 - z^3 + 2) dz$  around a unit circle  $|z| = 1$  is
- (A) 5 (B) 2  
(C) 0 (D) -1
93. If the general solution of  $\frac{d^2 y}{dx^2} - y = \sin x$  is given by  $ae^x + be^{-x} - \frac{1}{2} \sin x$  then which part of it is complementary function?
- (A)  $ae^x - \frac{1}{2} \sin x$  (B)  $be^{-x} - \frac{1}{2} \sin x$   
(C)  $-\frac{1}{2} \sin x$  (D)  $ae^x + be^{-x}$

94. The number of solutions of the system of equation  $Ax = 0$  where  $A$  is a singular matrix is  
 (A) Infinity (B) 2  
 (C) 1 (D) 0
95. If the probability of a defective bolt is 0.1, what is standard deviation of the distribution of defective bolt in total of 400?  
 (A) 7 (B) 6  
 (C) 5 (D) 4
96. The value of  $y(1.2)$  for  $y' = \frac{y}{x}$ , where  $y(1) = 1$  using Euler's method for  $h = 0.2$  is  
 (A) 1.2 (B) 1.1  
 (C) 1.3 (D) 1
97. The equation  $\frac{\partial u}{\partial t} = a^2 \frac{\partial^2 u}{\partial x^2}$  is called one dimensional \_\_\_\_\_ equation.  
 (A) Transmission line (B) Heat  
 (C) Wave (D) Laplace
98. Let  $f(x, y, z) = c$  represent the equation of surface. Then unit normal vector to this surface is  
 (A)  $\text{div}(\text{grad } f)$  (B)  $\text{curl}(\text{grad } f)$   
 (C)  $\frac{\text{grad } f}{|\text{grad } f|}$  (D)  $\text{grad } f$
99. The Taylor series expansion of  $e^z$  about  $z = a$  is given by  
 (A)  $e^a \sum_{n=0}^{\infty} \frac{(z+a)^n}{n!}, |z+a| < \infty$  (B)  $e^a \sum_{n=0}^{\infty} \frac{(z-a)^n}{n!}, |z-a| < \infty$   
 (C)  $ae^a \sum_{n=0}^{\infty} \frac{(z+a)^n}{n!}, |z+a| > \infty$  (D)  $e^a \sum_{n=0}^{\infty} \frac{(-z-a)^n}{n!}, |-z-a| > \infty$
100. Conditions for a function  $f(x, y)$  to be maximum are (  $r = f_{xx}$ ,  $s = f_{xy}$ ,  $t = f_{yy}$  )  
 (A)  $f_x = 0 = f_y, rt < s^2, r < 0$  (B)  $f_x = 0 = f_y, rt > s^2, r > 0$   
 (C)  $f_x = 0 = f_y, rt = s^2, r > 0$  (D)  $f_x = 0 = f_y, rt > s^2, r < 0$



**SPACE FOR ROUGH WORK / રફ કામ માટેની જગ્યા**