



ਪੰਜਾਬ ਟੈਕਨੀਕਲ ਯੂਨੀਵਰਸਿਟੀ ਜਲੰਧਰ
PUNJAB TECHNICAL UNIVERSITY JALANDHAR

Max. Marks: 90

Time: 90 Mins.

Entrance Test for Enrollment in Ph.D. Programme

Important Instructions

- Fill all the information in various columns, in capital letters, with blue/black ball point pen.
- Use of calculators is not allowed.
- All questions are compulsory. No negative marking for wrong answers.
- Each question has only one right answer.
- Questions attempted with two or more options/answers will not be evaluated.

Stream (Engg./Arch./Pharm./Mgmt./App.Sci./Life Sci.)

Engineering

Discipline / Branch

Textile Engineering

Name

Father's Name

Roll No.

Date.

Signature of Candidate

Signature of Invigilator

Q1. Density of cotton fibre is approximately

- (a) 1.52 Denier (b) 1.52 g/Tex (c) 1.52 kg/m³ (d) 1.52 g/cm³

Q2. The byproduct obtained from polycondensation of diethylene glycol terephthalate (DGT) is

- (a) Glycolic acid (b) Water (c) Diethylene glycol (d) Ethylene glycol

Q3. Ziegler Natta catalyst is used in the polymerization of

- (a) PET (b) Nylon (c) Acetate (d) Polypropylene

Q4. The cross section of the spinneret used for producing hollow fibre is

- (a) C-Shaped (b) Rectangular (c) Annular concentric (d) Triangular

Q5. 20s, 30s, 40s and 60s Ne cotton yarn have same twist per inch. The yarn having maximum obliquity is

- (a) 20s Ne (b) 30s Ne (c) 40s Ne (d) 60s Ne

Q6. For a given yarn count made from the same fibre, rotor spun yarn is bulkier than ring spun yarn, due to

- (a) Rotor spun yarn is more even than ring spun yarn

- (b) Navel tube peels off the fibre from rotor yarn surface
- (c) Rotor spun yarn has large numbers of wrapper fibres
- (d) Yarn tension in rotor spinning is lower as compared to ring spinning

Q7. During the roller drafting, better fibre control is achieved by flexing the fibre strand over bottom roller due to

- (a) Enhanced fibre to fibre coefficient of friction
- (b) Enhanced fibre to fibre friction
- (c) Reduced slippage of the top roller
- (d) Reduced fibre to metal friction

Q8. Hairiness is more in the following yarn

- (a) Rotor yarn (b) Airjet Yarn (c) Ring Yarn (d) DREF yarn

Q9. In the modern draw frame maximum delivery speed is upto

- (a) 300 m/min (b) 500 m/min (c) 1500 m/min (d) 3000 m/min

Q10. For 2/2 twill weave, the heald shaft movement over one complete repeat will be least in

- (a) Bottom closed shed (b) semi open Shed (c) Open shed (d) Centre closed shed

Q11. The power required for picking in a shuttle loom depends on

- (a) Weave of the fabrics (b) Number of heald shaft (c) Number of picking cams (d) Reed width

Q12. In the drum driven winder

- (a) Traverse ratio is constant (b) Traverse ratio reduces with increase in package diameter (c) Angle of wind increases with the increase in package diameter (d) Angle of wind reduces with the increase in package diameter

Q13. In the flat bed knitting machine, the loop length is controlled by

- (a) Raising cam (b) Stitch cam (c) Clearing Cam (d) Guard cam

Q14. Evenness tester measures

- (a) % mean deviation in the yarn (b) Thick and Thin Places in the yarn (c) both (d) None

Q15. Out of the following, which is not a surfactant

- (a) Detergent (b) Wetting agent (c) Dispersing agent (d) Reducing agent

Q16. The machine used for continuous processing of fabric is

(a) Winch (b) J Box (c) Kier (d) Jigger

Q17. If the 50% span length of 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

Q18. The nep setting on an evenness tester which will give the highest nep count is

(a) +400% (b) +280% (c) +200% (d) +140%

Q19. The example of a coagulant used in the textile effluent treatment is

(a) Activated Carbon (b) Ferrous sulphate (c) Hydrogen peroxide (d) Sodium Chloride

Q20. The property of the fabric which influences Drape the most

(a) Compressional (b) Tensile (c) Surface (d) shear

Q21. Fabrics with the same sett but different weave are woven on the loom. The tear strength will be minimum in the fabric having

(a) Plain weave (b) 3/1 twill weave (c) 5 end satin weave (d) 2/2 matt weave

Q22. A filament yarn of 300 Denier is spun at a take up speed of 900 m/min. Assuming the density of the melt as 1.2 g/cm^3 , the through put speed (cm^3/min) at the spinneret would be

(a) 23.6 to 32.0 (b) 8.0 to 10 (c) 24.9 to 25.1 (D) 20.2 to 22.4

Q23. A garment factory manufactures shirts. From the basis of past history, it is known that 8 out of 100 collars and 5 out of 100 sleeves are defective. The probability of assembled should not have either of these defects are

(a) 0.87 to 0.88 (b) 0.89-0.9 (c) 0.7-0.8 (d) 0.89-0.96

Q24. A yarn has mean strength of 10N with a standard deviation of 1N. The number of test must be conducted, so that at 95 % confidence level, maximum error in the estimated mean strength is 1.96% is

(a) 99.9-100.1 (b) 89.2 -93 (c) 99.2-100 (d) 95-97

Q25. The fibre which has mineral origin is

(a) Asbestos (b) Flex (c) Silk (d) Acrylic

Q26. Chemical that is used to convert soda cellulose to sodium cellulose xanthate in the manufacture of viscose rayon is

(a) Sodium sulphide (b) Carbon disulphide (c) sodium xanthate (d) Sodium hydroxide

Q27. Which of the following fibre will float in water,

(a) Nylon (b) Polyester (c) Acrylic (d) Polypropylene

Q28. Most of the seed coat particles are removed in

(a) Blow room (b) Card (c) Comber (d) Draw frame

Q29. In a card, the wire point density is maximum on

(a) Cylinder (b) Flat (c) doffer (d) Licker in

Q30. The spinning system that does not generate false twist during spinning is

(a) DREF 3 (b) Ring Spinning (c) Rotor Spinning (d) Airjet Spinning

Q31. For the 5/3 twill weave, if the rotational speed of crank shaft, bottom shaft and tappet shaft are P, Q and R respectively, then P:Q:R would be

(a) 1:4:8 (b) 8:4:1 (c) 2:1:1 (d) 2:1:8

Q32. In the Airjet weaving, the acceleration of the weft yarn will be maximum when the yarn is

(a) Coarser and more hairy (b) Coarser and less hairy (c) Finer and less hairy (d) Finer and more hairy

Q33. The coarser yarn amongst the following is

(a) 100 Ne (b) 50 Denier (c) 50 dtex (d) 200 Nm

Q34. For a plain woven fabric, the diameters of warp and weft yarns are 0.2 mm and 0.3 mm respectively. The crimp in the warp yarn is 9% and pick spacing is 0.4 mm. The fabric thickness in mm is

(a) 0.32 (b) 0.50 (c) 0.64 (d) 0.75

Q35. If the error in the measurement of yarn diameter is 0.5%, the error in the estimated cross sectional area of this yarn would be

(a) 0.25 % (b) 1.0% (c) 2.5% (d) 5.0%

Q36. Density of amorphous region of fibre 1.33 g/cm^3 , density of crystalline region of fibre 1.45 g/cm^3 , density of fibre 1.36 g/cm^3 and diameter of fibre is 14 micron. The denier of fibre is

(a) 1 (b) 2 (c) 3 (d) 4

Q37. A card with doffer diameter 60mm, fed with lap of 395 ktex delivers sliver of 3.95 ktex. The draft between doffer and coiler calendar roller is 1.4. The total draft of the card is

- (a) 71 (b) 140 (c) 100 (d) 171

Q38. The average maturity coefficient of cotton fibre is

- (a) 60% (b) 75% (c) 82% (d) 95%

Q39. The following dye will be suitable for sublimation transfer printing of Polyester

- (a) Reactive dye (b) Vat dye (c) Acid dye (d) Disperse dye

Q40. Uniformity ratio for normal variety of cotton in the range

- (a) 0.2-0.3 (b) 0.4-0.5 (c) 0.7-0.8 (d) 0.9-1.0

Q41. Universal bleaching agent is

- (a) Bleaching powder (b) NaOH (c) H₂O₂ (d) None

Q42. Souring is done to

- (a) Remove Size (b) Neutralize the substrate after alkaline treatment (c) Remove colorant (d) Remove wax

Q43. Sizing ingredients are

- (a) Starch (b) Antiseptic agent (c) softener (d) all

Q44. Air jet texturing makes multifilament yarn more suitable as weft in airjet weaving because the yarn becomes

- (a) Rigid and does not bend in the shed (b) Smooth and help in reducing warp friction (c) Bulkier and results in high propelling force (d) Heavier and produces high kinetic energy

Q45. For a shuttle loom the radius of crank and length of connecting rod to the sley are 10 cm and 40 cm respectively. The value of sley eccentricity is

- (a) 0.25 (b) 0.50 (c) 1.0 (d) 4.0

Q46. An eccentric top roller in a drafting system leads to a

- (a) Change in draft with oscillation in nip line
(b) Change in draft without oscillation in nip line
(c) Neither change in draft nor oscillation in nip line
(d) Oscillation of nip line only

Q47. The range of spinning speed (m/min) used in the manufacture of partially oriented polyester yarn is

- (a) 1000-1200 (b) 2000-2500 (c) 2800-3500 (d) 4000-8000

Q48. Drawing of synthetic filament does not lead to an increase in

- (a) Crystallinity (b) Tenacity (c) Tensile modulus (d) Elongation at break

Q49. Ratio of grab test to strip test is the highest when the fabric extension (%) is

- (a) 5 (b) 0 (c) 10 (d) 15

Q50. Fabric abrasion resistance cannot be assessed by the loss in

- (a) Thickness (b) Strength (c) Air permeability (d) Weight

Q51. Size add-on does not depend on

- (a) Roller hardness (b) drying cylinder temperature (c) Size paste concentration (d) Machine speed

Q52. Ball warping is mainly used in the manufacture of

- (a) Terry Towel (b) Narrow fabrics (c) Denim (d) 3D fabric

Q53. A 51 mm long fibre has 6 % crimp. The crimp length of the fibre in mm is approximately

- (a) 46 (b) 44 (c) 50 (d) 48

Q54. On evenness tester, thin place in the yarn at -40% setting is counted if mass per unit length is

- (a) 40 % of the mean mass per unit length (c) 60 % of the mean mass per unit length
(b) 40 % of the mean mass per unit length or less (d) 60 % of the mean mass per unit length or less

Q55. Bursting strength of a woven fabric with the same warp and weft yarns is the highest when ratio of ends/cm and picks/cm is

- (a) 1.1 (b) 1.0 (c) 0.9 (d) 0.8

Q56. The factor that does not influence the propelling force for moving the weft yarn on air jet loom is

- (a) Coefficient of friction between air and yarn (b) Yarn strength (c) Air velocity (d) Yarn diameter

Q57. Bleached cotton fabrics were sent for determination of copper number, which is an estimate of the presence of

- (a) Hydroxyl group (b) Carboxyl group (c) Reducing group (d) Oxidizing group

Q58. Softener reduces the bending rigidity of fabrics by decreasing

- (a) Modulus of the fibre (b) Packing coefficient of yarn (c) Inter fibre and inter yarn friction (d) Glass transition temperature of the fibre

Q59. Drafting wave can be controlled by

- (a) Pressure bar (b) Pressure switch (C) Pressure rod (d) None

Q60. Degree of shore hardness of front cots in ring frame (cotton processing) is

- (a) 95 degree (b) 85 degree (c) 65 degree (d) 100 degree

Q61. The efficacy of the wash –n–wear treatment can be estimated by measuring its

- (a) Bending length (b) Tensile strength (c) Dye uptake (d) crease recovery

Q62. A 225 denier viscose yarn has breaking strength of 7.5 N. the yarn tenacity in cN/dtex is

- (a) 3 (b) 5 (c) 12 (d) 8

Q63. The weight of material on roving bobbin is 2.4 kg. The roving hank is 600 tex. If the delivery rate is 20 m/min, the time (min) required to build the bobbin is

- (a) 180 (b) 190 (c) 200 (d) 210

Q64. The strength utilization of yarn in a woven fabric is

- (a) Always more than 1.0 (b) Always less than 1.0 (c) Equal to 1.0 (d) Either more or less than 1.0

Q65. The terry towel fabric is

- (a) Warp pile structure with two series of warp and one series of weft yarn
(b) Weft pile structure with two series of warp and one series of weft yarn
(c) Warp pile structure with one series of warp and two series of weft yarn
(d) Weft pile structure with two series of weft and one series of warp yarn

Q66. Strength of cotton fibre increases with

- (a) Increase in moisture (b) Decrease in moisture (c) All (d) None

Q67. The degree of cell wall thickening is highest in

- (a) Dead fibre (b) full mature fibre (c) Half mature fibre (d) None

Q68. A cotton fibre of 180millitex has a density of 1.5g/cm^3 and an average perimeter of $40\ \mu\text{m}$. The average area of the cell wall (μm^2) is

- (a) 80 (b) 100 (c) 120 (d) 140

Q69. A cotton fibre of 180millitex has a density of $1.5\text{g}/\text{cm}^3$ and an average perimeter of $40\ \mu\text{m}$. The average degree of thickening of the cell wall is approx

- (a) 0.84 (b) 0.89 (c) 0.94 (d) 0.92

Q70. The increase in traveler weight leads to an increase in

- (a) Yarn twist (b) Traveller lag (c) Balloon diameter (d) Yarn tension

Q71. Dog knot is preferred to weavers knot during creeling because it is

- (a) Easier to make (b) Strength (c) Smaller in size (d) Less prone to slippage

Q72. Styles of printing are

- (a) Direct (b) discharge (c) Resist (d) All

Q73. Doctors blade is used in

- (a) Block printing (b) Screen printing (c) Roller Printing (d) All

Q74. Seldom occurring faults are measured by

- (a) Evenness tester (b) AFIS (c) Classimat tester (d) Baer Sorter

Q75. Malachite Green is important dye stuff. The typical green colour is obtained when the dye molecule is

- (a) Cationic (b) Nonionic (c) Anionic (d) All

Q76. The maximum practical limit of spindle speed in commercial cotton ring frame is about

- (a) 5000 rpm (b) 10000 rpm (c) 20000 rpm (d) 40000 rpm

Q77. Density of Polyester fibre is

- (a) More than cotton (b) Less than cotton (c) More than cotton and viscose (d) None

Q78. Moisture regain (%) of nylon fibre is in the range

- (a) 1-2 (b) 7-8 (c) 3.5 -4.5 (d) 10-12

Q79. For the evenness testing of cotton sliver, the testing speed is generally

- (a) 25 m/min (b) 50 m/min (c) 100 m/min (d) 400m/min

Q80. Which type of dyes are not used now

- (a) Vat dye (b) Reactive dye (c) Azo dye (d) Acid dye

Q81. Fibre structure can be studied by

- (a) X Ray method (b) Infra red method (c) Electron Microscope (d) All

Q82. Photo sensitive solution is used during the preparation of

- (a) Block Printing (b) Screen Printing (c) Roller Printing (d) None

Q83. Overall cleaning efficiency of blow room and card (combined) is

- (a) 85 % (b) 90 % (c) 95 % (d) 99 %

Q84. At zero gauge length the bundle strength of cotton fibre is 32 g/tex, what will be the bundle strength of the same cotton fibre at 3 mm gauge length

- (a) More than 32 g/tex (b) less than 32 g/tex (c) Equal to 32 g/tex (d) None

Q85. Advance fibre information system (AFIS) provides information about

- (a) Seed coat neps (b) Neps size (c) Short fibre content (n) (d) All

Q86. Six slivers are doubled together and given three passages on draw frame. The number of doublings is

- (a) 216 (b) 9 (c) 18 (d) 486

Q87. Sizing of a spun yarn normally does not

- (a) Increase yarn strength (b) Reduces yarn hairiness (c) Increase yarn extension
(d) Improves yarn weavability

Q88. When cotton is dyed with direct dye, washing fastness and light fastness is

- (a) Poor (b) Good (c) Excellent (d) None

Q89. NaCl in the dye bath is used as

- (a) Exhausting agent (b) Oxidizing agent (c) Reducing agent (d) None

Q90. A typical curve between equilibrium dye uptake and dyeing temperature goes through a maximum. After the maximum, the dye uptake decreases because

- (a) Kinetic energy increases rapidly (b) Dyeing is an exothermic process (c) Saturation value is reached (d) Pressure in the dye bath increases