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POLYTECHNIC TRB

TEXTILE TECHNOLOGY



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Module Name : Textile Technology-E

Exam Date : 08-Dec-2021; Batch : 09:00-12:00

PART-A

1. The bond between the molecular chains of cellulose is ___ .

A) Vander Waal's forces

B) Hydrogen bond - **(Correct Answer)**

C) Ionic bond

D) Covalent bond

2. The degree of polymerisation of cotton fibre is ___ .

A) 10000β - glucose units - **(Correct Answer)**

B) 10000 cellobiose units

C) 5000β - glucose units

D) 100β - glucose units

3. The orientation factor of low stretch viscose rayon is ___ .

A) 0.54 - **(Correct Answer)**

B) 0.62

C) 0.97

D) 0.74

4. The proportion of Glutamic acid in casein fibre is ___ . .

A) 2.03

B) 16.0

C) 22.03 - **(Correct Answer)**

D) 1.9

5. Caprolactum is a monomer for ___ fibre.

A) Viscose

B) Poly lactic acid

C) Nylon 6 - **(Correct Answer)**

D) Acrylic

6. Which one of the following polymer is named as Nylon 4 ?

A) Poly pyrrolidinone - **(Correct Answer)**

B) Poly enantholactum

C) Poly acrylonitrile

D) Poly caprolactum

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7. The crystallite size in A° for an ordinary Poly propylene fibre is approximately ___ .

A) 15.2

B) 134.7 — **(Correct Answer)**

C) 201.8

D) 43 - 45

8. Which one of the following polymer is a raw material for poly vinyl alcohol ?

A) Poly caprolactum

B) Cellulose acetate

C) Poly propylene

D) Polyvinyl acetate - **(Correct Answer)**

9. Which one of the following is a mammalian fibre ?

A) Cotton

B) Silk

C) Wool - **(Correct Answer)**

D) Acetate

10. The proportion of ortho cortex in fine wool is ___ . .

A) 66-68% - **(Correct Answer)**

B) 50%

C) 28-32%

D) 1-4%

11. For the same linear density of yarn, more number of fibres in the cross-section of yarn, i.e. finer fibres, provide ___ strengths and ___ evenness to the yarn.

A) Higher, Less

B) Higher, Higher - **(Correct Answer)**

C) Less, Higher

D) Less, Less

12. In the Preparatory for short staple spinning, the intensity of opening is higher at :

A) carding machine, between flat and cylinder - **(Correct Answer)**

B) Bale opener, between inclined lattice and evener roller

C) Bale plucker in picking material from bale

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D) Three bladed beater

13. Twisting of fibrous bundle takes place in ring spinning from ___ and in rotor spinning from ___

A) inside outwards, outside inwards

B) inside outwards, inside outwards

C) outside inwards, outside inwards

D) outside inwards, inside outwards — **(Correct Answer)**

14. The rotational speed of licker-in in the high performance card is about ___ rpm for cotton and the draft between lickerin and cylinder is about ___ . The carding machine has single licker-in.

A) 800-2000 rpm, 2 - **(Correct Answer)**

B) 80-200 rpm, 2

C) 800-2000 rpm, 1.2

D) 80-200 rpm, 1.2

15. In the modern carding machines used for short staple spinning, the ___ , ___ and ___ wire clothing are used for flat, cylinder and doffer respectively.

A) Flexible, Flexible, Metallic

B) Flexible, Metallic, Flexible

C) Flexible, Metallic, Metallic - **(Correct Answer)**

D) Metallic, Metallic, Flexible

16. Select the incorrect statement with respect to top comb of comber.

A) Lowering the top comb increases noil %

B) Needle density of top comb is in the range of 23-32 needles per inch - **(Correct Answer)**

C) Excessive deep penetration disturbs fibre movement during piecing

D) Higher needle density results higher noil %

17. Select the incorrect statement with respect to traveller used in ring spinning.

A) It imparts twist to the yarn

B) Yarn tension necessary for stable balloon is generated by the friction of traveller on the ring

C) Traveller is pressed against the ring mainly by the centripetal force acting on it - **(Correct Answer)**

D) It is responsible for winding the yarn onto the cop

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18. As the Count (Ne) of yarn produced at ring frame is increased the thickness of apron spacer is to be ___ and traveller clearer setting is to be ___ .

A) Increased, Increased

B) Increased, Decreased

C) Decreased, Increased

D) Decreased, Decreased - **(Correct Answer)**

19. During retting process of raw flax, ___ is decomposed.

A) Pectin - **(Correct Answer)**

B) Sericin

C) Cellulose

D) Fibroin

20. The tensile strength of yarn of 20 gf/tex is approximately equivalent to :

A) 20 N/tex

B) 20 RKM - **(Correct Answer)**

C) 200 RKM

D) 200 CN/tex

21. The limit of the successive Tucks on the same needle in a single jersey knitting machine is not influenced by :

A) Needle hook size

B) Yarn count

C) Sinker throat size - **(Correct Answer)**

D) fabric take-down tension

22. The 'Contra' knitting technique is used in :

A) Single jersey knitting machine - **(Correct Answer)**

B) Rib knitting machine

C) Interlock knitting machine

D) Purl knitting machine

23. Which of the following element in the shuttle weaving machine has cycloidal motion ?

A) shuttle

B) healds - **(Correct Answer)**

C) sky

D) tappet

24. Which one of the following fibre is generally considered to have the best abrasion resistance ?

A) Polyester

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B) Nylon - **(Correct Answer)**

C) Wool

D) Cotton

25. In direct yarn numbering system, the linear density of yarn is expressed by measuring the weight of the yarn in grams of ___ metres in the tex system.

A) 840

B) 1,000 - **(Correct Answer)**

C) 9,000

D) 10,000

26. In the case of spun bonding process, the tensile property of the final fabric is influenced by ___ . .

A) Polymer throughput rate

B) Quench air rate

C) Take-up speed

D) Bonding temperature and pressure - **(Correct Answer)**

27. In the yarn winding system, the number of yarn coils laid on the package surface per single traverse is ___ .

A) gain

B) wind — **(Correct Answer)**

C) traverse ratio

D) traverse length

28. In warp sizing, "the mass in one pound of oven - dry solid matter in 100 pound of size paste" is ___ .

A) size percentage

B) size concentration - **(Correct Answer)**

C) size add-on

D) size take-up

29. In Projectile weaving machine, the maximum possible sky dwell is ___ .

A) 150°

B) 180°

C) 250° — **(Correct Answer)**

D) 300°

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30. _____is formed on shuttleless narrow fabric weaving machine.

A) Half cross leno selvedge

B) Full cross leno selvedge

C) Chain stitch edge - **(Correct Answer)**

D) Tuck-in selvedge

31. Acid hydrolysis of starch follows :

A) endothermic reaction

B) exothermic reaction - **(Correct Answer)**

C) nucleophilic addition

D) nucleophilic substitution

32. The ratio of α-amylase to β-amylase in the amylase enzyme obtained from malt extract is :

A) 1 : 1 to 1 : 2

B) 5 : 1 to 6 : 1

C) 1 : 10 to 1 : 15

D) 1 : 5 to 1 : 6 - **(Correct Answer)**

33. The "lousy" silk is formed during degumming of silk filament using Sodium Carbonate - because of :

A) exposure to high temperature

B) exposure to mechanical stresses and strains - **(Correct Answer)**

C) exposure to gentle movement

D) exposure to contact with smooth surface

34. The traces of free chlorine present in the cotton fabric after bleaching with hypochlorite is removed by treating with :

A) Sulphuric acid

B) Hydrochloric acid

C) Sodium chloride

D) Sodium sulphite - **(Correct Answer)**

35. Presence of copper and iron in the cotton fabric will cause ___ during bleaching with hydrogen peroxide solution.

A) Reduced oxidising action

B) Promoted oxidising action - **(Correct Answer)**

C) No oxidising action

D) No decomposition of hydrogen peroxide

36. The wool fabric can be bleached using :

(i) Hydrogen peroxide

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(ii) Sodium hypochlorite

(iii) Calcium hypochlorite

A) (i) only - **(Correct Answer)**

B) (i) and (ii) only

C) (ii) and (iii) only

D) (iii) only

37. The main role of sodium carbonate in dyeing of cotton with direct dye is :

A) Exhaustion of dyes

B) Fixation of dyes

C) Solubility of dyes - **(Correct Answer)**

D) Levelling of dyes

38. The hydrolysis of dichlorotriazinyl dyes is taking place in the presence of :

A) Acid

B) Alkali - **(Correct Answer)**

C) Salt

D) Soap

39. Temperature involved in continuous dyeing of polyester with disperse dye is :

A) 130°C

B) 80°C

C) 200°C - **(Correct Answer)**

D) 260°C

40. The main problem associated with low solids content thickener in printing of polyester fabric is :

A) Colour yield

B) Sharpness of prints - **(Correct Answer)**

C) Splintering

D) Dusting-off

41. The critical chain link number, N_{crit} of polyethylene polymer is ___ .

A) 784

B) 286 — **(Correct Answer)**

C) 570

D) 609

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42. For PET filaments, during drawing, after the formation of neck like deformation, the diameter and crystallinity, ___ respectively.

A) increases, increases

B) does not change, increases

C) increases, decreases

D) decreases, increases

Correct Answer:- *

43. What is the spinning speed limit for producing partially oriented yarn ?

A) above 6000 mpm

B) 4500-6000 mpm

C) 1500-4000 mpm - **(Correct Answer)**

D) 500-1500 mpm

44. In polymerisation reactions, the step growth polymerisation is also called as :

A) condensation polymerisation - **(Correct Answer)**

B) addition polymerisation

C) interfacial polymerisation

D) chain reaction polymerisation

45. The range of spin finish applied for Nylon during melt spinning is ___ .

A) 1.1 - 2%

B) 0.2 - 1% — **(Correct Answer)**

C) 5.5 - 6%

D) 7% and above

46. The fibre which is very difficult to texturize is :

A) Nylon 6

B) Nylon 6, 6

C) Polyester

D) Acrylic - **(Correct Answer)**

47. Polypropylene is difficult to texturize because of its ___ . .

A) poor thermal conductivity - **(Correct Answer)**

B) high thermal conductivity

C) inertness

D) low crystallinity

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48. The formation of Diethylene glycol can be controlled by :

A) selecting minimum amount of monoethylene glycol - **(Correct Answer)**

B) avoiding preheating stage in poly condensation step

C) lowering pH

D) avoiding low vacuum stage in poly condensation step

49. The solvent mostly used to remove the catalytic residues during polypropylene polymer production is :

A) nitric acid

B) sulphuric acid

C) isopropane

D) hydrochloric acid

Correct Answer:- *

50. With increase in Winding speed in melt spinning of PET, a decrease in values can be observed for :

A) Density

B) Amorphous orientation

C) Crystallinity

D) Shrinkage - **(Correct Answer)**

51. Which of the following expresses the 'co-efficient of variation' in a data set as a % ?

A) $\frac{100\bar{x}}{\sigma}$

B) $\frac{100\sigma}{\bar{X}}$ - **(Correct Answer)**

C) $\sqrt{\frac{\sum (x-\bar{x})^2}{n-1}}$

D) $\frac{\sum |x-\bar{x}|}{n}$

52. The mean, median and mode coincide for ___ .

A) F - Distribution

B) Chi - square Distribution

C) Binomial Distribution

D) Normal Distribution - **(Correct Answer)**

53. Which of the following is an example for discrete variable ?

A) Number of faults in 100 m lengths of cloth - **(Correct Answer)**

B) Lengths of certain type of garment

C) Time taken to repair stopped machines

D) Linear density of yarn

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54. If a manufacturing process is modified with the aim of improving its variability, the suitable test of significance would be ___ .

A) t - test (Single tail)

B) Chi - square test - **(Correct Answer)**

C) Test for single proportion

D) t - test (Double tail)

55. Which of the following is CORRECT about correlation co-efficient ' γ '?

A) $\frac{\sum (x-\bar{x})(y-\bar{y})}{\sum (x-\bar{x})^2 \sum (y-\bar{y})^2}$

B) $\frac{\{\sum (x-\bar{x})(y-\bar{y})\}^2}{\sum (x-\bar{x})^2 \sum (y-\bar{y})^2}$

C) $\frac{\sum (x-\bar{x})(y-\bar{y})}{\sqrt{\sum (x-\bar{x})^2 \sum (y-\bar{y})^2}}$ - **(Correct Answer)**

D) $\frac{\sqrt{\sum (x-\bar{x})(y-\bar{y})}}{\sqrt{\sum (x-\bar{x})^2 \sum (y-\bar{y})^2}}$

56. The value of Karl Pearson's correlation co-efficient always lies in between ___ .

A) -1 to 1 - **(Correct Answer)**

B) 0 to 1

C) -1 to 0

D) .- 0.5 to 0.5

57. Which of the following chart is used when the variable of the process is 'continuous'?

A) c - chart

B) p - chart

C) np - chart

D) R - chart - **(Correct Answer)**

58. Bottom shaft of a shuttle loom, weaving 2 up 1 down twill weave is rotating at 90 rpm. The speed of cam shaft (in rpm) is .

A) 180

B) 90

C) 60 - **(Correct Answer)**

D) 45

59. The stitch length from the following details is ___ .

(course length = 450 cm, Number of loops in the fabric width = 900)

A) 0.5 - **(Correct Answer)**

B) 2

C) 1

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D) 1.5

60. The limit CV% for Woollen yarn is ___ .

A) 100/√n

B) 106/√n

C) 112/√n — **(Correct Answer)**

D) 120/√n

61. Which one of the following is the correct expression for speed ratio in flat belt drive considering the belt thickness ?

A) $n_1(d_1 + t) = n_2(d_2 + t)$ – **(Correct Answer)**

B) $n_2(d_1 + t) = n_1(d_2 + t)$

C) $n_1\left(d_1 + \frac{t}{2}\right) = n_2\left(d_2 + \frac{t}{2}\right)$

D) $n_2\left(d_1 + \frac{t}{2}\right) = n_1\left(d_2 + \frac{t}{2}\right)$

62. Which one of the following is not a disadvantage for flat belt drive ?

A) Stretch

B) Versatility - **(Correct Answer)**

C) Slip

D) Wear

63. ___ is essentially a screw, cut in a helical pattern along the length of the shaft.

A) Ratchet

B) Pinion

C) Worm - **(Correct Answer)**

D) Geneva Wheel

64. A woodcraft built up tappet has a wheel of 120 teeth. How many teeth are required in the driving pinion, which is on the crank shaft, for weave repeating on 5 picks ?

A) 24 - **(Correct Answer)**

B) 20

C) 15

D) 10

65. Which of the following is an example for flexible drive ?

A) Belt - **(Correct Answer)**

B) Chain

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C) Gear

D) Mangle Wheel

66. Calculate the work done in lifting a bale of fibres of mass 120 kg from the ground to a delivery bay 3 m above ground level. (Assume g = 10 m/s^2).

A) 1200 J

B) 2400 J

C) 3600 J - **(Correct Answer)**

D) 4800 J

67. The coefficient of static friction between two stationary surfaces is best defined by the following expression.

A) μ = F/N — **(Correct Answer)**

B) μ = N/F

C) F = μ cosec α

D) F = μN cosec α

68. A hydro extractor is revolving at 18 rad/s. Calculate the rotational speed in rpm. (Assume $\pi = 3$ and consider upto 1 decimal place)

A) 600

B) 400

C) 180 - **(Correct Answer)**

D) 150

69. Which of the following does not represent equation for linear motion ?

A) $\omega_2 = \omega_1 + \alpha t$ - **(Correct Answer)**

B) v = u + at

C) $s = ut + \frac{1}{2}at^2$

D) $v^2 = u^2 + 2as$

70. Special thrust bearings have to be provided on the shaft to prevent sideways out of mesh for which of the following gear ?

A) Spur gear

B) Helical gear - **(Correct Answer)**

C) Double helical gear

D) Bevel gear

71. Density of silk fibre measured at 65% R.H. :

A) 0.95 g/cm^3

B) 1.34 g/cm^3 - **(Correct Answer)**

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C) 1.52 g/cm^3

D) 2.5 g/cm^3

72. Moisture regain of Glass fibre measured at 65% R.H. and 20°C is ___ .

A) 14%

B) 10%

C) 6%

D) 0% - **(Correct Answer)**

73. Birefringence value of Nylon is ___ .

A) 0.010

B) 0.046

C) 0.063 - **(Correct Answer)**

D) 0.188

74. Specific heat of dry cotton fibre measured at room temperature is ___ .

A) 0.80 Jg^{-1} K^{-1}

B) 1.05 Jg^{-1} K^{-1}

C) 1.34 Jg^{-1} K^{-1}

D) 1.21 Jg^{-1} K^{-1} — **(Correct Answer)**

75. Melting point of Nylon 6, 6 fibre is ___ .

A) 135°C

B) 170°C

C) 260°C - **(Correct Answer)**

D) 300°C

76. Co-efficient of friction (μ) value of silk fibre measured between crossed fibres :

A) 0.14

B) 0.26 - **(Correct Answer)**

C) 0.46

D) 0.52

77. In tensile properties of textile fibres, specific stress is determined by :

A) Load / Breaking strain

B) Load / (mass/unit length) — **(Correct Answer)**

C) Load / (area of cross-section)^2

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D) Load / (mass/unit length)²

78. Specific stress of textile fibres at break is called :

A) Breaking load

B) Tenacity - **(Correct Answer)**

C) Ultimate tensile stress

D) Toughness

79. Specific work of rupture of textile fibres is determined by :

A) Work of rupture / [(mass/unit length)² × (initial length)]

B) Work of rupture / [(mass/unit length) × (initial length)²]

C) Work of rupture / [(mass/unit length)² × (initial length)²]

D) Work of rupture / [(mass/unit length) × (initial length)] — **(Correct Answer)**

80. Work factor of textile fibres is determined by :

A) Work of rupture / (breaking load × breaking elongation) — **(Correct Answer)**

B) Work of rupture / (breaking load² × breaking elongation)

C) Work of rupture / (breaking load × breaking elongation²)

D) Work of rupture / (breaking load² × breaking elongation²)

81. Chemical Potential (μ) of a chemical reaction is expressed as :

A) μ^{o} + RTln a - **(Correct Answer)**

B) μ^{o} − RTln a

C) $\mu^{o} + RT\ln\frac{a}{b}$

D) $\mu^{o} - RT\ln\frac{a}{b}$

82. In dyeing of textiles the adsorption process always follows :

A) nucleophilic reaction

B) isothermic reaction

C) exothermic reaction - **(Correct Answer)**

D) endothermic reaction

83. The chemical compound which is soluble in a liquid, having high dielectric constant, and move independently usually bonds as :

A) Covalent bond

B) Ionic bond

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C) Ion-Dipole forces

D) Hydrogen bond

Correct Answer:- *

84. The adsorption of all disperse dyes on all hydrophobic polymers is the combined action of :

A) Strong dispersion forces together with weak hydrogen bond forces

B) Weak dispersion forces together with strong hydrogen bond forces - **(Correct Answer)**

C) Weak dispersion forces together with weak hydrogen bond forces

D) Strong dispersion forces together with strong hydrogen bond forces

85. Dyeing of Polyacrylonitrile fibre with Basic dye follows :

A) Nernst isotherm

B) Freundlich isotherm

C) Langmuir isotherm - **(Correct Answer)**

D) Multilayer isotherm

86. Match the following :

Fibre	**Swelling in water (%) (Volume Swelling)**
(i) Silk	(a) 2
(ii) Cuprammonium rayon	(b) 44 - 49
(iii) Nylon	(c) 30 - 41
(iv) Cotton	(d) 99 - 134

A) (i) - (c), (ii) - (d), (iii) - (a), (iv) - (b) — **(Correct Answer)**

B) (i) - (c), (ii) - (d), (iii) - (b), (iv) - (a)

C) (i) - (d), (ii) - (c), (iii) - (a), (iv) - (b)

D) (i) - (d), (ii) - (c), (iii) - (b), (iv) - (a)

87. Which one of the following compound is used as comonomer for acrylic fibres ?

A) Methyl methacrylate - **(Correct Answer)**

B) I-Anthinoanthraquinone

C) Phenyl Phosphoric acid

D) P-toluene Sulphonic acid

88. Copolymerization of Polypropylene mostly not preferred. Because :

A) It affects fibre orientation

B) It deactivates the Zigler-Natta catalyst - **(Correct Answer)**

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C) It promote the action of catalyst

D) It affects the drawing of filaments

89. The term 'Partition ratio' is expressed as :

A) Logarithmic ratio of the activity of the dye in the solution to that in fibre.

B) Logarithmic ratio of the activity of the fibre in solution at different temperature.

C) Logarithmic ratio of the activity of the fibre in solution at different concentration.

D) Logarithmic ratio of the activity of the dye in the fibre to that in solution.

Correct Answer:- *

90. If the concentration of dye molecules in the fibre is 100 times higher than that in solution, the Partition ratio is :

A) 100 - **(Correct Answer)**

B) RT ln 100

C) $\frac{RT}{\ln 100}$

D) $RT \ln \frac{1}{100}$

91. The statement showing the financial status of a company as on a date is :

A) Profit and loss statement

B) Funds flow statement

C) Balance sheet - **(Correct Answer)**

D) Cash flow statement

92. Which one of the following is not the carrying cost of inventory ?

A) Receiving quotation, processing and placing purchase order - **(Correct Answer)**

B) Cost of storage facility

C) Cost of insurance of stores

D) Interest on investment in procuring inventory

93. The employee selection test that discovers the applicant's cleverness to work with his hands and fingers when the job requires skilful use of one's hand and body is :

A) Personality test

B) Dexterity test - **(Correct Answer)**

C) Intelligence test

D) Simulation test

94. Which one of the following is variable cost in production of yarn ?

A) Interest cost on loans used for procuring fixed assets

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B) Administrative overheads

C) Depreciation of machinery

D) Interest cost on working capital - **(Correct Answer)**

95. The linear density of draw frame sliver for producing 15 tex yarn is about :

A) 3 tex

B) 4.5 tex

C) 1.5 dten

D) 4.5 ktex - **(Correct Answer)**

96. Select the odd one with respect to wage incentive plan for direct workers.

A) Maslow plan - **(Correct Answer)**

B) Halsey plan

C) Rowan plan

D) Bedaux plan

97. Number of units(kWh) of power required to produce 1 kg of 40 Ne carded cotton yarn is about :

A) 1.3

B) 4.1 - **(Correct Answer)**

C) 8.1

D) 12.4

98. Which one of the following is not the method used for replacement analysis of machinery and equipments ?

A) Rate of Return method

B) MAPI (Machinery Allied Products Institute) method

C) Sum of Digits Method - **(Correct Answer)**

D) Total Life Average Method

99. Which one of the following is the semi-variable cost in the garment manufacturing factory ?

A) Salary of production supervisor

B) Cost of fabric

C) Grease and oil used for the production machinery - **(Correct Answer)**

D) Rent for the factory

100. Which one of the following is control chart for variables ?

A) np chart

B) p chart

C) $\bar{x}$ chart ___ - **(Correct Answer)**

D) c chart

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101. What will be ratio compounded of the 3 ratios

2 : 3, 6 : 11 and 11 : 2 ?

A) 2 : 1 - **(Correct Answer)**

B) 2 : 3

C) 1 : 2

D) 3 : 2

102. Who is called as 'the Master of the Seven notes of Music' ?

A) Pandiya Nedunchezhiyan

B) Cheran Senguttuvan

C) Karikalan - **(Correct Answer)**

D) Mahendiran I

103. Impulse is expressed ___ .

A) Force x Time - **(Correct Answer)**

B) Mass x Acceleration

C) $\frac{\text{Momentum}}{\text{Time}}$

D) Mass x Velocity

104. Which one of the following is a Vat dye ?

A) Alizarin

B) Bismarck brown

C) Indigo - **(Correct Answer)**

D) Malachite green

105. A concentric arrangement of bundle sheath cells of the leaves of C-4 plants is called ___ .

A) anamalous thickening

B) kranz anatomy - **(Correct Answer)**

C) cystolith

D) quantosome

106. Who organised green turbaned peasants agitation in 1972 ?

A) E.V.R. Periyar

B) Narayanaswami - **(Correct Answer)**

C) Nallakannu

D) K. Kamaraj

107. Who was the First Nayak Ruler of Madurai ?

A) Krishnappa Nayak

B) Visvanatha Nayak - **(Correct Answer)**

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C) Tirumalai Nayak

D) Chokkanatha Nayak

108. Annie Besant established the Home Rule League at :

A) Bombay

B) Calcutta

C) Madras - **(Correct Answer)**

D) Lucknow

109. 'Fathom' is a unit to measure the :

A) Salinity

B) Volcanic activity

C) Mass movement

D) Sea water depth - **(Correct Answer)**

110. In which Tamil literature, the word 'Sangam' is used?

A) Agathiyam

B) Tholkappiyam - **(Correct Answer)**

C) Thirukural

D) Iraiyanar Ahapporul Urai

PART-B

1. The molecular weight of silk-worm cocoon silks of fibroin heavy chain and fibroin light chain is ___ and ___ respectively.

A) 375 Da , 25 Da

B) 375000 Da, 25000 Da - **(Correct Answer)**

C) 1500 Da, 750 Da

D) 15000 Da, 7500 Da

2. The monomer which is derived from propylene is ___ .

A) Vinyl chloride

B) Styrene

C) Adipic acid

D) Acrylonitrile - **(Correct Answer)**

3. In cotton fibre, the thickness of primary cell wall is ___ .

A) 0.1 to 0.2 micron - **(Correct Answer)**

B) 15 to 20 micron

C) 1 to 2 micron

D) 100 to 200 micron

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4. Which of the following is one of the monomers for Nomex ?

A) Vinyl chloride

B) Vinyl acetate

C) Isophthaloyl chloride - **(Correct Answer)**

D) Terephthaloyl chloride

5. Feeding material to the opening rollers of an cleaning machine occurs in free flight gives ___ treatment of the fibres.

A) gentle and less intensive - **(Correct Answer)**

B) gentle and high intensive

C) intensive and less gentle

D) high intensive and not gentle

6. In draw-frame, 5 kilotex sliver is delivered at 600 metres per minute at 100 percent efficiency, the production in kg per hour is ___ .

A) 3

B) 18

C) 180 - **(Correct Answer)**

D) 3000

7. The rotor speed is 80000 rpm and delivery rate of rotor spinning machine is 200 metres per minute, the rotor spun yarn twist per inch is ___ .

A) 1

B) 10 - **(Correct Answer)**

C) 40

D) 400

8. Find out the Rkm value of the cotton spun yarn, if the lea CSP(Count Strength Product) of the yarn is 2250.

A) 1.5

B) 15 - **(Correct Answer)**

C) 150

D) 2250

9. If b_d is the barb depth, d_f is the fibre diameter, n_b is the number of acting barbs on the needle, number of fibres collected by the barbs (n_f) of a needle can be calculated as :

A) $(2\ b_d x_f)/n_b$

B) $\frac{2\ b_d}{d_f} \times n_b -$ **(Correct Answer)**

C) $2\ b_d \times n_b \times d_f$

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D) $\frac{2\,b_d}{n_b} \times d_f$

10. Match the following.

(a) Side by side bicomponent fibres

(b) Sheath Core bicomponent fibre (Concentric form)

(c) Sheath Core bicomponent fibre (Eccentric form)

(d) Splittable bicomponent filaments

(i) Gives Thermal bonded high fabric strength

(ii) Evolon hydroentangled fabrics

(iii)Differential thermal shrinkage

(iv)Gives thermal bonded high bulk fabric

A) (a) - (ii), (b) - (i), (c) - (iv), (d) - (iii)

B) (a) - (iii), (b) - (iv), (c) - (ii), (d) - (i)

C) (a) - (i), (b) - (iii), (c) - (ii), (d) - (iv)

D) (a) - (iii), (b) - (i), (c) - (iv), (d) - (ii) - **(Correct Answer)**

11. In cross lapper web forming machine, the number of layers in cross laid web can be calculated as :

A) (Effective laying width × Web feed rate) / (Effective web width × Web takeoff rate)

B) (Effective web width × Web feed rate) / (Effective laying width × Web takeoff rate) — **(Correct Answer)**

C) (Effective web width × Web takeoff rate) / (Effective laying width × Web feed rate)

D) (Effective laying width × Web takeoff rate) / (Effective web width × Web feed rate)

12. The single jersey knitted fabric; 'l' is the stitch length in mm, 'S' is the stitch density (loops per square cm) and 'T' is the yarn linear density in tex, grams per square metre may be calculated as :

A) $S \times 1 \times T^2$

B) $(S \times 1 \times T)^2/10000$

C) $S \times 1 \times T$

D) $(S \times 1 \times T)/100$ - **(Correct Answer)**

13. Identify the CORRECT statement regarding adsorption isotherms.

A) Nernst Isotherm clearly explains the adsorption of vat dyes by cotton

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B) Freundlich Isotherm clearly explains the adsorption of vat dyes by cotton - **(Correct Answer)**

C) Langmuir Isotherm clearly explains the adsorption of vat dyes by polyester

D) Nernst Isotherm clearly explains the adsorption of direct dyes by silk

14. Identify the 'INCORRECT' Statement about direct dyes.

A) Majority of direct dyes are unmetallized azo structures

B) Congo red is sensitive to acids

C) Congo red is not used as acid indicator - **(Correct Answer)**

D) Copper pthalocyanine dyes exhibit photochromic change on cellulosic fiber

15. The maximum swelling of cotton fiber occurs at a sodium hydroxide concentration of about :

A) 20 g/litre

B) 40 g/litre

C) 70 g/litre

D) 150 g/litre - **(Correct Answer)**

16. The major composition of cotton wax is :

A) Unsaponifiable matter - **(Correct Answer)**

B) Saponifiable matter

C) Hydrocarbons

D) Sterols

17. Assertion (A): Isotactic polypropylene is insoluble in n-heptane.

Reason (R) : Suspension polymerisation is the most preferred route for Isotactic polypropylene polymer production due to above assertion.

A) (A) is true (R) is wrong

B) (A) is true (R) is true - **(Correct Answer)**

C) (A) is wrong (R) is true

D) (A) is wrong (R) is wrong

18. The catalyst preferred for production of nylon 6 Polymer is :

A) water - **(Correct Answer)**

B) ethanol

C) methanol

D) butanol

19. In melt spinning, the moisture content should not exceed ___ by weight for nylon 6.

A) 0.005%

B) 0.05% - **(Correct Answer)**

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C) 0.5%

D) 5%

20. Production of acrylic by wet spinning involves ___ .

A) chemical reaction to precipitate the polymer

B) Solvent/non solvent systems — **(Correct Answer)**

C) Solidification of filaments by hot air

D) Solidification of filaments by Cold air

21. In a binomial distribution, the mean = 6 and the variance = 2. Determine the sample size ' n ', p and q :

A) 4, 0.55, 0.45

B) 9, 0.67, 0.33 - **(Correct Answer)**

C) 6, 0.6, 0.4

D) 18, 0.33, 0.67

22. Match the test in Group - I with the fabric property in Group - II.

Group – I

(P) Cup test

(Q) Heart loop test

(R) Spray rating test

(S) Hydrostatic head test

Group - II

(1) Flexural rigidity

(2) Water vapour permeability

(3) Resistance to water penetration

(4) Resistance to surface wettability

A) (P) - (1), (Q) - (2), (R) - (3), (S) - (4)

B) (P) - (1), (Q) - (2), (R) - (4), (S) - (3)

C) (P) - (2), (Q) - (1), (R) - (3), (S) - (4)

D) (P) - (2), (Q) - (1), (R) - (4), (S) - (3) - **(Correct Answer)**

23. A wet relaxed plain knitted worsted fabric is made from 55 tex yarn and has a stitch length of 5 mm. The areal density of the fabric (rounded off to one decimal place) is ___ . (Assume $K_s = 2160$

A) 25.4 stitches/ cm^2

B) 86.4 stitches/ cm^2

C) 25 stitches/ mm^2

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D) 49.2 stitches/inch ^{2}

Correct Answer:- *

24. A fabric produced on a loom of 140 cm reed width, running at 200 picks/min has the following details : warp 20 tex, warp crimp 6%, 16 ends/cm weft 25 tex, weft crimp 10%, 20 picks/cm The fabric length in metres per 40 hours is ___ .

A) 200 m

B) 220 m

C) 240 m - **(Correct Answer)**

D) 120 m

25. A Shedding tappet has a wheel of 100 teeth. How many teeth are required in the driving pinion, which is on the crankshaft, for weaves repeating on 4 picks and 5 picks ?

A) 15 & 10

B) 25 & 20 - **(Correct Answer)**

C) 30 & 25

D) 40 & 30

26. A metal wire of length 10 cm is found to have 80% elasticity on recovery from a load which stretches it to double its initial length. Calculate the permanent set remaining in the wire on the conclusion of the experiment.

A) 1 cm

B) 2 cm - **(Correct Answer)**

C) 4 cm

D) 6 cm

27. The linear velocity of a vee - belt is 200 m/min. If the pitch diameters of the motor pulley and the machine pulleys are 4 cm and 8 cm respectively, the motor and machine speeds are ___ and ___ . (Assume = 3)

A) 3000 rpm & 6000 rpm

B) 9000 rpm & 4500 rpm

C) 10000 rpm & 5000 rpm - **(Correct Answer)**

D) 6000 rpm & 3000 rpm

28. The two springs for reversing the motion of a heald shaft, each have to be stretched 15 cm to put them in position with the heald shaft down. If the stiffness of each spring is . 5 N/cm, find the work done in putting the springs in position. (Round the answer to two decimal places)

A) 6.75 J - **(Correct Answer)**

B) 22.5 J

C) 45 J

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D) 62.5 J

29. In the structure of polyamides, the fully extended chain segments are characterised as ___ .

A) α - structure - **(Correct Answer)**

B) γ - structure

C) Helical structure

D) cross linked structure

30. The shape factor of oval cross sectioned fibre is ___ cross sectioned fibre.

A) lower than circular

B) lower than elliptical

C) lower than elliptical but higher than circular

D) higher than circular - **(Correct Answer)**

31. During conditioning of fibres, the temperature of the fibre ___ .

A) increases gradually

B) initially increases up to the transient equilibrium and then decreases - **(Correct Answer)**

C) decreases gradually

D) initially decreases up to the transient equilibrium and then increases

32. At 0% water, the T_g values for both nylon 6 and nylon 66 are in the range of ___ to ___ .

A) - 5, 10°C

B) 230, 250°C

C) 40, 55°C - **(Correct Answer)**

D) 120, 125°C

33. In case of rapid dyeing of polyester the correct expression for finding out rate of temperature rise in critical heating zone is :

Where

K_f = level dyeing capacity of the machine (%/cycle)

F = cloth speed (m/min)

L = total length of cloth (m)

V_m = maximum heating rate

H = rate of temperature rise

A) $H = \frac{K_f \times F}{L \times V_m}$ – **(Correct Answer)**

B) $H = \frac{K_f \times V_m}{L \times F}$

C) $H = \frac{L \times F}{K_f \times V_m}$

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D) $H = \frac{K_f \times L}{V_m \times F}$

34. Which of the following chemical group enhances fluorescence ?

A) - CH = CH - - **(Correct Answer)**

B) $-SO_3H$

C) - COOH

D) - OH & - COOH

35. The gas fading of disperse dyes on polyester fabric can be retarded by :

A) N - diphenyl ethylene diamine - **(Correct Answer)**

B) 1 - histidine hydrochloride

C) Ammonia

D) Ammonium chloride

36. ___ bonds play an important role in dyeing of protein and polyamide fibres with anionic dyes.

A) Covalent bond

B) Ionic bond - **(Correct Answer)**

C) Hydrogen bond

D) Vander waals forces

37. The cost of a product is Rs. 250 . If the profit is 20% of price, the profit is Rs. ___ and price is Rs. ___ .

A) 50,300

B) 62.5, 312.5 - **(Correct Answer)**

C) 75.5, 325.5

D) 100, 350

38. In a company, the fixed expenses is Rs. 80,000 per month. The variable cost is Rs. 4 per unit and selling price is Rs. 20 per unit. The company produces and sells 10,000 units in a month. The margin of safety is ___ .

A) 50% - **(Correct Answer)**

B) 60%

C) 80%

D) 200%

39. The delivery rate of carding machine is 180 mpm and the hank of sliver produced is 0.12 Ne . The production per shift at 95% efficiency is ___ kg.

A) 23.8

B) 40.3

C) 238

D) 403 - **(Correct Answer)**

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40. The winding speed of cone winding machine is 550 mpm . If the count of yarn is 40 Ne and machine efficiency is 80%, the production per drum per shift of 8 hours is :

A) 1.83 kg

B) 3.1 kg - **(Correct Answer)**

C) 18.3 kg

D) 31 kg

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