

# PUNJAB PUBLIC SERVICE COMMISSION

**Competitive Examination (January-2018) for Recruitment of Lecturer Textile Chemistry in the Deptt. of Technical Education & Industrial Training, Govt. of Punjab**

**READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.**

**Candidate's Name** \_\_\_\_\_

**Father's Name** \_\_\_\_\_

**Date of Birth**

DD      MM      YYYY

**Category Code\***

(\*as given in the admit card)

**OMR Response Sheet No.** \_\_\_\_\_

**Roll No.** \_\_\_\_\_

**Booklet No.**

**Candidate's Signature** (Please sign in the box)

## INSTRUCTIONS

<p>1. The candidate shall NOT open this booklet till the time told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant columns (other than the columns related to marking responses to the questions) of the Optical Mark Reader(OMR) response sheet supplied separately.</p> <p>2. Use only blue or black ball point pen to fill the relevant columns on this page. Use of fountain pen may leave smudges which may make the information given by the candidate here illegible.</p> <p>3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible.</p> <p>4. The candidate must fill all the columns given above on this page and sign at the appropriate place.</p> <p>5. Each candidate is required to attempt 100 questions in 120 minutes, except for orthopaedically/visually impaired candidates, who would be given 40 minutes extra by marking correct responses on the OMR sheet which would be supplied separately to the candidates.</p> <p>6. The candidate must write the following on the OMR sheet: (a) Serial number of OMR sheet supplied to him/her for marking the responses to the questions. (b) Serial number of the question booklet Failure to do so may lead to cancellation of candidature or any other action which the Commission may deem fit.</p> <p>7. The candidate should darken the appropriate response to the question by completely darkening the appropriate circle/oval according to his/her choice of response i.e. a, b, c or d in the manner shown in the example below.</p> <p style="text-align: center;"> <span style="margin-right: 10px;">a</span> <span style="margin-right: 10px;">b</span> <span style="margin-right: 10px;">c</span> <span>d</span> </p> <p style="text-align: center;"> </p> <p>8. Partly darkening the circle/oval on the OMR response sheet or using other symbols such as tick mark or cross would not result in evaluation of the response as the OMR scanner can only interpret the answers by reading the darkened responses in the manner explained in preceding paragraph. Darkening more than one circle/oval as response to a question shall also be considered as wrong answer.</p>	<p>9. The candidates shall be responsible to ensure that the responses are marked in correct manner and any adverse impact due to wrong marking of responses would be the responsibility of the respective candidate. The following are some of the examples of wrong marking of responses on the OMR response sheet.</p> <p style="text-align: center;"> </p> <p>10. The candidates, when allowed to open the question paper booklet, are advised to check the booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should immediately bring this fact to the notice of the invigilation Staff and obtain a booklet of the same series as this one.</p> <p>11. The serial number of the new booklet should be entered in the relevant column of the OMR. The candidate should request the Invigilation Staff to authenticate the change in serial number of question booklet by obtaining the initials of the Staff on the corrected serial number of the question booklet.</p> <p>12. The question paper booklet has 45 pages.</p> <p>13. Each question shall carry three marks.</p> <p>14. There are four options for each question and the candidate has to mark the most appropriate answer on the OMR response sheet using blue or black ball point pen.</p> <p>15. There is no negative marking for wrong answers or questions not attempted by the candidate.</p>
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1. Find the missing term:

0, 6, 24, 60, 120, 210, ?

- (a) 240
- (b) 290
- (c) 336
- (d) 504

2. Find the missing term:

1, 5, 13, 25, 41, ?

- (a) 51
- (b) 57
- (c) 61
- (d) 63

3. Find the missing term:

4, 12, 36, 108, ?

- (a) 144
- (b) 216
- (c) 304
- (d) 324

4. In a certain code, TEACHER is written as VGCEJGT. How is CHILDREN written in that code?

- (a) EJKNEGTP
- (b) EGKNFITP
- (c) EJKNFGTO
- (d) EJKNFTGP

**Read the following information carefully and answer the Questions No. 5 to 8 given below:**

Prashant Arora has three children – Sangeeta, Vimal and Ashish. Ashish married Monika, the eldest daughter of Mr. and Mrs. Roy. The Roys married their youngest daughter to the eldest son of Mr. and Mrs. Sharma, and they had two children named Amit and Shashi. The Roys have two more children, Roshan and Vandana, both elder to Veena. Sameer and Ajay are sons of Ashish and Monika. Rashmi is the daughter of Amit.

5. What is the surname of Rashmi?

- (a) Sharma
- (b) Roy
- (c) Arora
- (d) Cannot be determined

6. How is Sameer related to Monika's father?

- (a) Grandson
- (b) Son
- (c) Cousin
- (d) Son-in-law

7. What is the surname of Sameer?
- (a) Roy
  - (b) Sharma
  - (c) Arora
  - (d) Cannot be determined
8. How is Mrs. Roy related to Ashish?
- (a) Aunt
  - (b) Mother-in-law
  - (c) Mother
  - (d) Sister-in-law
9. I am facing east. I turn  $100^\circ$  in the clockwise direction and then  $145^\circ$  in the anti clockwise direction. Which direction am I facing now?
- (a) East
  - (b) North-east
  - (c) North
  - (d) South-west
10. Rohan walks a distance of 3 km towards North, then turns to his left and walks for 2 km. He again turns left and walks for 3 km. At this point he turns to his left and walks for 3 km. How many kilometers is he from the starting point?
- (a) 1 km
  - (b) 2 km
  - (c) 3 km
  - (d) 5 km
11. Who among the following is CEC (Chief Election Commissioner) of India?
- (a) A K Jyoti
  - (b) Nasim Zaidi
  - (c) H S Brahma
  - (d) V S Sampath
12. Which of the following is the highest mountain peak of India?
- (a) Mount Everest
  - (b) Nanga Parbat
  - (c) Kanchenjunga
  - (d) Nanda Devi
13. Who among the following has been appointed as Chairman of 15<sup>th</sup> Finance Commission?
- (a) N K Singh
  - (b) Urjit Patel
  - (c) Amrtya Sen
  - (d) Ashok Lahiri

14. 'Dandi March' marked the beginning of which of the following movements?

- (a) Non-cooperation movement
- (b) Civil Disobedience movement
- (c) Quit India movement
- (d) Champaran Satyagraha

15. Who among the following was recently crowned as Miss World?

- (a) Shubhangi Swaroop
- (b) Manushi Chillar
- (c) Priyanka Bhatt
- (d) Stephanie Hill

16. Who among the following is the Governor of RBI (Reserve Bank of India)?

- (a) Urjit Patel
- (b) Raghuram Rajan
- (c) C Rangarajan
- (d) Bimal Jalan

17. Who among the following wrote 'Loona', a verse play based on ancient legend of Puran Bhagat?

- (a) Amrita Prjtam
- (b) Gurdial Singh
- (c) Nanak Singh
- (d) Shiv Kumar Batalvi

18. Who among the following wrote the book 'Gitanjali'?

- (a) Rabindra Nath Tagore
- (b) Bankim Chandra Chatterjee
- (c) Dadabhai Naoroji
- (d) B.G. Tilak

19. Match the following:

- |                  |              |
|------------------|--------------|
| A. Jeff Bezos    | 1. Microsoft |
| B. Satya Nadella | 2. Amazon    |
| C. Larry Page    | 3. Alphabet  |
| D. Indra Nooyi   | 4. Pepsi     |

- |     | A | B | C | D |
|-----|---|---|---|---|
| (a) | 1 | 2 | 4 | 3 |
| (b) | 2 | 1 | 3 | 4 |
| (c) | 1 | 2 | 3 | 4 |
| (d) | 3 | 4 | 2 | 1 |

20. Who introduced the Permanent Settlement of 1793?
- (a) Robert Clive
  - (b) Cornwallis
  - (c) John Shore
  - (d) Philip Francis
21. Arrange the layers of the atmosphere in order of increasing altitude
- (a) Troposphere, stratosphere, mesosphere, thermosphere
  - (b) Mesosphere, stratosphere, thermosphere, troposphere
  - (c) Troposphere, stratosphere, thermosphere, mesosphere
  - (d) Thermosphere, mesosphere, stratosphere, troposphere
22. The gradual enrichment of lakes is known as
- (a) Exfoliation
  - (b) Eutrophication
  - (c) Denudation
  - (d) Ecological succession
23. The Salal Project is on which river ?
- (a) Jhelum
  - (b) Chenab
  - (c) Beas
  - (d) Satluj
24. Who is the author of *Ain-i-Akbari*?
- (a) Akbar
  - (b) Abul Fazl
  - (c) Firdausi
  - (d) Todarmal
25. The Chairman of the Public Accounts Committee of the Parliament is appointed by
- (a) Speaker of Lok Sabha
  - (b) Prime Minister of India
  - (c) President of India
  - (d) Chairman of Rajya Sabha
26. "Swaraj is my birth right and I shall have it." This is attributed to
- (a) Gandhi
  - (b) Tilak
  - (c) Nehru
  - (d) Vivekananda



27. Mahatma Gandhi was associated with which of the following newspapers?
- The Hindu
  - Young India
  - The Times of India
  - The Tribune
28. The members of the committees of Parliament are
- Nominated by the leaders of the various parties in the Parliament
  - Nominated by the prime minister
  - Appointed by the speaker or elected by the House from amongst persons who are not members of Parliament
  - Appointed by the speaker or elected by the House from amongst its own members
29. Which of the following islands has been named Abdul Kalam Island?
- Strait Island
  - Wheeler Island
  - Sriharikota
  - Great Nicobar
30. Who is the creator of the iconic Rock Garden?
- Master Tara Singh
  - Ms. Amrita Pritam
  - Kaptan Singh Solanki
  - Nek Chand
31. In testing of samples the standard deviation(SD) and mean deviation(MD) are related by
- $SD \times 0.798 = MD$
  - $SD \times 0.801 = MD$
  - $SD \times 0.333 = MD$
  - $SD \times 0.121 = MD$
32. Knowles balance is used in measurement of
- Tearing strength
  - Count
  - Tpi
  - Crease recovery angle
33. The air permeability of fabric is defined as the
- Volume of air  $\text{cm}^3/\text{sec}$  through  $1.0 \text{ cm}^2$  area
  - Volume of air  $\text{cm}^3/\text{sec}$  through  $2.0 \text{ cm}^2$  area
  - Volume of air  $\text{cm}^3/\text{sec}$  through  $3.0 \text{ cm}^2$  area
  - Volume of air  $\text{cm}^2/\text{sec}$  through  $1.0 \text{ cm}^2$  area

34.  $\beta$  glucose unit in cellulose contain
- One primary and two secondary alcohol
  - Two primary and two secondary alcohol
  - One primary and one secondary alcohol
  - One primary and three secondary alcohol
35. Air flow method is used to measure the
- Fineness of the fibre
  - Count of the yarn
  - GSM of the fabric
  - Drape of the fabric
36. The crystallinity development and transition temperature in polyester fibre is related with
- Directly proportional
  - Inversely proportional
  - Exponentially related
  - None of these
37. The  $\text{NaBrO}_2$  can be used in pretreatment of cotton as a
- Desizing agent
  - Scouring agent
  - Mercerizing agent
  - Wetting agent
38. The poor fabric pretreatment before printing resulted in
- Poor performance in printing
  - Tendering of fabric
  - Improper dye penetration
  - Excessive dye pick-up
39. To increase the absorbency of fabric before cotton printing the required treatment is
- Singeing
  - Bleaching
  - Mercerization
  - Desizing
40. The mercerization treatment is done with following chemicals
- HCl
  - $\text{Ba}(\text{OH})_2$
  - $\text{H}_2\text{SO}_4$
  - NaOH
41. The mercerization treatment can also be done by the use of
- Aqueous  $\text{NH}_3$
  - $\text{H}_2\text{SO}_4$
  - $\text{Na}_2\text{SO}_4$
  - LiOH

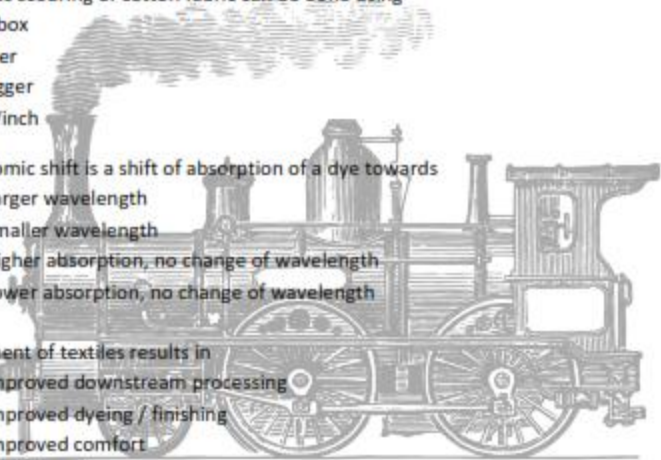
42. Most of the printing paste follow
- (a) Newtonian
  - (b) Dilatant
  - (c) Thixotropic
  - (d) Pseudo plastic
43. Ranoglit C is chemical product of
- (a) Sodium hydrosulphite and formaldehyde
  - (b) Sodium hydrosulphite and formic acid
  - (c) Sodium hydrosulphite and acetic acid
  - (d) Sodium hydrosulphite and sulphuric acid
44. The cold brand reactive dyes are applied at temperature
- (a) 20-30 C
  - (b) 10-20 C
  - (c) 70-80 C
  - (d) 90-100 C
45. Heat setting of polyester fabric is done to
- (a) Improve dimensional stability of the fabric
  - (b) Increase dye ability of fabric
  - (c) Improve tensile property of the fabric
  - (d) Decrease the crease recovery angle
46. In ageing process of printed goods
- (a) Printed goods are exposed to action of steam at two atmospheric pressure (80-90 C)
  - (b) Printed goods are exposed to action of dry steam at one atmospheric pressure (80-90 C)
  - (c) Printed goods are exposed to action of steam at one atmospheric pressure (80-90 C)
  - (d) Printed goods are exposed to action of super heated steam at one atmospheric pressure (80-90 C)
47. In steaming treatment of printed goods it is subjected
- (a) To action of steam for different time periods at higher pressure (than atmospheric pressure)
  - (b) To action of steam for different time periods at lower pressure (than atmospheric pressure)
  - (c) To action of steam for constant time periods at one atmospheric pressure
  - (d) To action of hot air for different time periods at higher pressure
48. In naphthol-nitrite padding method of printing, fabric padded with
- (a) Sodium salt of naphthol and sodium nitrite solution
  - (b) Padded with sodium nitrite
  - (c) Padded with sodium salt of naphthol
  - (d) Padded with base solution



49. In base printing method the padded naphthol should have
- Poor affinity for fabric
  - Good affinity for the fabric
  - Permanent fixation with the fabric
  - None of these
50. During steaming of disperse dye printing to protect the disperse dye we use
- Sodium nitrobenzene sulphonate
  - Formic acid an
  - Acetic acid
  - Hydrogen peroxide
51. The formula for moisture content of fibre is
- $M = 100W/D+W$
  - $M = W/D+W$
  - $M = D+W/100W$
  - $M = D/W$
52. The reactive sites in cotton fibre is
- OH
  - NH<sub>2</sub>
  - SO<sub>3</sub>H
  - COOH
53. In wool finishing by the use of steam there is
- Hydrolysis of -S-S- bond
  - Hydrolysis of -N-N- bond
  - Hydrolysis of -C=O bond
  - Hydrolysis of -C=C- bond
54. Twist factor is directly proportional to
- $\tan \theta$
  - $\cos \theta$
  - $\sin \theta$
  - $\sec \theta$
55. The reduction of disperse dyes on polyester fabric ground is done with the help of
- Zinc sulphoxylate formaldehyde
  - H<sub>2</sub>O<sub>2</sub>
  - Na<sub>2</sub>S
  - HCl
56. Sodium chlorite is a preferred bleaching agent in pretreatment of
- For wool fibre
  - For silk fibre
  - For linen fibre
  - For synthetic fibre

57. To measure the degradation of cotton fabric the test performed is
- Copper number
  - Barium activity number
  - Change in GSM of the fabric
  - Iodine absorption test
58. The deeper color can be obtained in polyester printing by steaming at
- Steaming for 20-30 min. at 36—44 lb/inch<sup>2</sup>
  - Curing at 160 C for 60 min.
  - Steaming for 20-30 min. at 50 lb/inch<sup>2</sup>
  - Steaming for 20-30 min. at 70 lb/inch<sup>2</sup>
59. In disperse dye printing the disperse dye should be
- High sublimation fastness
  - Poor sublimation fastness
  - Low molecular weight
  - High molecular weight
60. Textile testing atmosphere is defined as-
- Temperature (20 +/- 2) Humidity (65 +/- 2)
  - Temperature (30 +/- 2) Humidity (60 +/- 2)
  - Temperature (28 +/- 2) Humidity (60 +/- 2)
  - Temperature (40 +/- 2) Humidity (65 +/- 2)
61. Chrome mordant dye is most suitable for
- Wool
  - Nylon
  - Silk
  - All of them
62. The negative zeta potential of cotton fibre is
- 31 mv
  - 80 mv
  - 60 mv
  - 120 mv
63. Crimp % is the measurement of the
- Waviness of the yarn in fabric
  - Twist of the yarn in the fabric
  - Tensile strength of the yarn in the fabric
  - Count of the yarn
64. Use of 1,3-dimethyl-4,5-dihydroxyethylene urea (DMeDHEU) in resin finishing
- Has potential to release only acceptable amount of formaldehyde
  - Is safe as it is toxicity free and it does not release formaldehyde
  - Is very hazardous and has ban on it to use
  - Release extensive amount of formaldehyde but still in use

65. Twist in the spun yarn decides
- (a) Strength
  - (b) Hairiness
  - (c) Packing density
  - (d) All of the above
66. Tenacity is defined as
- (a) Specific stress at break
  - (b) Ultimate stress
  - (c) Stress at which specimen separates in to pieces
  - (d) Stress at which strain is no more proportional to stress
67. Cotton/PET blend fabric is generally bleached with
- (a)  $H_2O_2$
  - (b)  $NaClO_2$
  - (c)  $NaOCl$
  - (d) Both  $NaOCl$  and  $NaClO_2$
68. Continuous scouring of cotton fabric can be done using
- (a) J-box
  - (b) Kier
  - (c) Jigger
  - (d) Winch
69. Bathochromic shift is a shift of absorption of a dye towards
- (a) Larger wavelength
  - (b) Smaller wavelength
  - (c) Higher absorption, no change of wavelength
  - (d) Lower absorption, no change of wavelength
70. Pretreatment of textiles results in
- (a) Improved downstream processing
  - (b) Improved dyeing / finishing
  - (c) Improved comfort
  - (d) All of the above
71. Oxidative desizing is effective for
- (a) Synthetic size materials only
  - (b) Natural size materials only
  - (c) Both synthetic and natural size materials
  - (d) None of the above

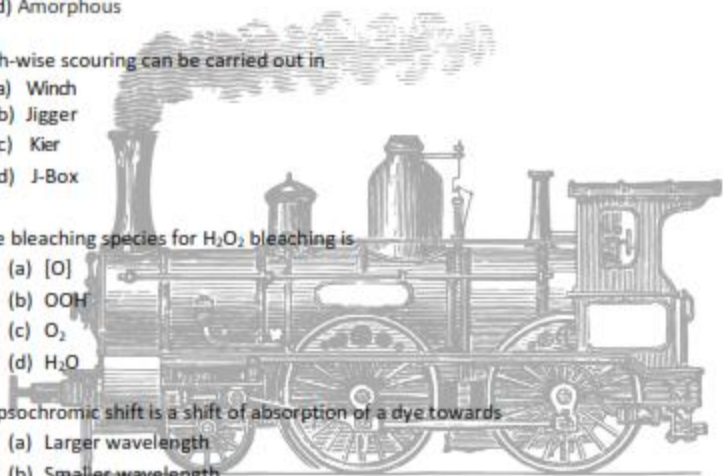


72. For desizing starch from cellulosic cotton, which enzyme/s can be used
- Cellulase
  - Amylase
  - Both cellulase and amylase
  - Protease
73. The most suitable bleaching agent for polyester is
- $H_2O_2$
  - $NaClO_2$
  - $NaOCl$
  - Both  $H_2O_2$  and  $NaClO_2$
74. Resin finishing of cotton
- Improves the dimensional stability and wrinkle resistance
  - Improves the wrinkle resistance but deteriorate the dimensional stability
  - Improves both the wrinkle resistance and tearing strength
  - Improves the wrinkle resistance and tensile strength
75. Fabric to metal surface contact is
- Is less in CAN Dryer as compared to Roller Ovens
  - Is more in CAN Dryer as compared to Roller Ovens
  - Similar in both the CAN Dryer and Roller Ovens
  - Is more in Loop Dryer as compared to CAN Dryer
76. Inherently fire retardant fibre has
- Higher combustion temperature
  - Higher pyrolysis temperature
  - Higher molecular weight
  - Intensive hydrogen bonding
77. For super hydrophobic fabric, contact angle should be
- 150-160 deg.
  - 115-120 deg.
  - 120-125 deg.
  - 90-120 deg.
78. Following material can be used as water proof coating
- Starch
  - Polystyrene
  - Polyurethane
  - None of the above

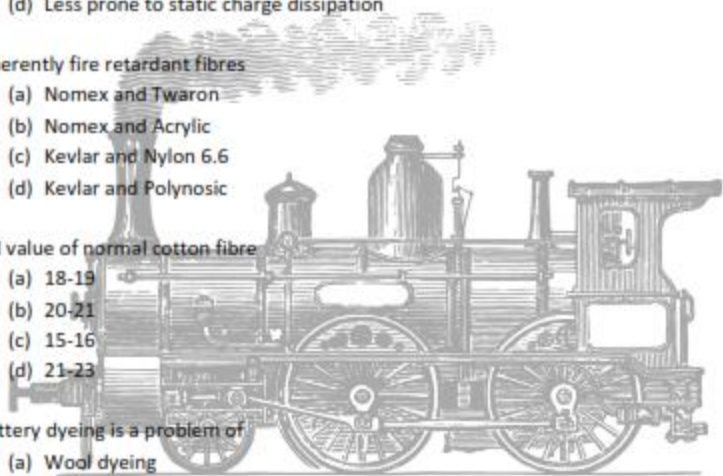
79. 'Compaction' is a
- (a) Mechanical finishing treatment of the fabric
  - (b) Chemical finishing treatment of the fabric
  - (c) Combination of mechanical and chemical finishing of the fabric
  - (d) None of the above
80. Decatizing is
- (a) Wet heat setting operation of wool
  - (b) Dry heat setting operation of wool
  - (c) Dry heat setting of polyester
  - (d) Wet heat setting of acrylics
81. Fixation of reactive dyes (MCT) with cotton can occur in presence of
- (a) Sodium silicate
  - (b) Acetic acid
  - (c) Carboxylic acid
  - (d) Phosphoric acid
82. Discharge ability scale rating of dye for illuminant colour is
- (a) 4 – 5
  - (b) 3 – 4
  - (c) 1
  - (d) 0
83. Choose the CORRECT statement
- (a) Dyeing is an exothermic phenomenon while printing is endothermic
  - (b) Dyeing is an endothermic phenomenon while printing is exothermic
  - (c) Dyeing and printing both are exothermic phenomena
  - (d) Dyeing and printing both are endothermic phenomena
84. 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
85. Malachite Green is an important dyestuff. The typical green colour is obtained when the dye molecule is
- (a) Nonionic
  - (b) Cationic
  - (c) Anionic
  - (d) Made up of phenyl groups



86. Bursting strength of a woven fabric with the same warp and weft yarns is the highest when the ratio of ends/cm and picks/cm is
- (a) 1.1
  - (b) 1.0
  - (c) 0.9
  - (d) 0.8
87. The tenacity of ramie varies from
- (a) 5.3 - 7.6 gms / denier
  - (b) 9 - 11 gme / denier
  - (c) 7 - 8 gms / denier
  - (d) 1 - 5 gms / denier
88. When the fibre molecules are arranged in random order then it is
- (a) High orientation
  - (b) Low orientation
  - (c) Crystalline
  - (d) Amorphous
89. Batch-wise scouring can be carried out in
- (a) Wind
  - (b) Jigger
  - (c) Kier
  - (d) J-Box
90. The bleaching species for  $H_2O_2$  bleaching is
- (a) [O]
  - (b) OOH
  - (c)  $O_2$
  - (d)  $H_2O$
91. Hypsochromic shift is a shift of absorption of a dye towards
- (a) Larger wavelength
  - (b) Smaller wavelength
  - (c) Higher absorption, no change of wavelength
  - (d) Lower absorption, no change of wavelength
92. In scouring, emulsifying agent is used to
- (a) Emulsify the saponifiable parts of the impurities
  - (b) Emulsify the non-saponifiable parts of the impurities
  - (c) Both the saponifiable and non-saponifiable parts of the impurities
  - (d) Remove the pectins and their salts



93. Cupra-ammonium fluidity test can give an idea about the
- Bleaching efficiency of cotton fibre
  - Scouring efficiency of cotton fibre
  - Degradation of cotton fibre during it's processing
  - Extent of mercerization of cotton fibre
94. Wrinkle resistance finishing of cotton
- Improves the abrasion resistance of the fabric
  - Decrease the abrasion resistance of the fabric
  - Decrease yellowness index of the fabric
  - Improves tearing strength of the fabric
95. Conducting fibres are
- More prone to static charge build-up
  - Less prone to static charge build-up
  - More prone to dirt attraction
  - Less prone to static charge dissipation
96. Inherently fire retardant fibres
- Nomex and Twaron
  - Nomex and Acrylic
  - Kevlar and Nylon 6.6
  - Kevlar and Polynosic
97. LOI value of normal cotton fibre
- 18-19
  - 20-21
  - 15-16
  - 21-23
98. Skittery dyeing is a problem of
- Wool dyeing
  - Silk dyeing
  - Nylon dyeing
  - Cotton dyeing
99. Auxochrome groups in a dye are responsible for
- Solubility of the dye only
  - Hue change only
  - Both the solubility and hue change
  - None of these



100. Dye-fibre interaction in case of wool fibre dyed with acid dye is through

- (a) Coordinate and covalent bond
- (b) Coordinate and electrovalent bond
- (c) Electrovalent and hydrogen bond
- (d) Coordinate and hydrogen bond

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