

# PUNJAB PUBLIC SERVICE COMMISSION

## Competitive Examination (Jan-2018) for Recruitment of Lecturer Dyeing & Printing in the Department 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>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 <b>examples of wrong marking</b> of responses on the OMR response sheet.</p> 
<p>2. <b>Use only blue or black ball point pen</b> 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>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>4. The candidate must fill all the columns given above on this page and sign at the appropriate place.</p> <p>5. <b>Each candidate is required to attempt 100 questions in 120 minutes</b>, 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>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>6. <b>The candidate must write the following on the OMRs sheet:</b>                  (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>12. The question paper booklet has 14 pages.</p> <p>13. <b>Each question shall carry three marks.</b></p>
<p>7. <b>The candidate should darken the appropriate response to the question by completely darkening the appropriate circle/oval</b> 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;">                 a            b            c            d   </p>	<p>14. <b>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.</b></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>15. <b>There is no negative marking</b> for wrong answers or questions not attempted by the candidate.</p>

1. What is INSAS?
  - (a) An assault rifle
  - (b) A military tank
  - (c) Supersonic missile
  - (d) Rocket Launcher by ISRO
  
2. Who among the following is Governor of RBI?
  - (a) Urjit Patel
  - (b) Bimal Jalan
  - (c) Raghuram Rajan
  - (d) Bibek Debroy
  
3. Where is the headquarter of ISRO (Indian Space Research Organisation) located?
  - (a) New Delhi
  - (b) Sri Harikota
  - (c) Bangalore
  - (d) Chennai
  
4. Where is the city of Haifa located?
  - (a) Iran
  - (b) Israel
  - (c) Saudi Arabia
  - (d) North Korea
  
5. Which among the following countries is not a member of ASEAN?
  - (a) Indonesia
  - (b) India
  - (c) Myanmar
  - (d) Singapore
  
6. Who among the following is Prime Minister of Israel?
  - (a) Ariel Sharon
  - (b) Joko Widodo
  - (c) Thongloun Sisoulith
  - (d) Benjaimin Netanyahu

**Directions: In each of the following (Q. 7-9) questions, a number series is given with one term missing. Choose the correct alternative that will continue the same pattern and replace the questions mark in the given series.**

7. 2,3,3,5,10,13, ? 43, 172, 177
  - (a) 23
  - (b) 38
  - (c) 39
  - (d) 40

8. 3,7,23,95, ?

- (a) 62
- (b) 128
- (c) 479
- (d) 575

9. 2, 2, 5, 13, 28, ?

- (a) 49
- (b) 50
- (c) 51
- (d) 52

**Directions (Questions 10-11) :** In each of the following questions there is a certain relationship between two given words on one side of :: and one word is given on another side of :: while another word is to be found from the given alternatives, having the same relation with this word as the words of the given pair bear. Choose the corrective alternative.

10. Botany: Plants :: Entomology: ?

- (a) Snakes
- (b) Insects
- (c) Birds
- (d) Germs

11. Pulp: Paper :: Hemp: ?

- (a) Basket
- (b) Yarn
- (c) Rope
- (d) Cotton

**Directions (Questions 12-13):** In each of the following questions, there is some relationship between the two terms to the left of :: and the same relationship holds between the two terms to its right. Also, in each question, one term either to the right of :: or to the left of it is missing. This term is given as one of the alternatives given below each question. Find out this term.

12. CIRCLE is related to RICELC in the same way as SQUARE is related to .....

- (a) QSUERA
- (b) QUSERA
- (c) UQSAER
- (d) UQSERA

13. Which one of the following is not a traditional Punjabi dance?
- (a) Sammi
  - (b) Vain
  - (c) Gidha
  - (d) Bhangra
14. Ranjit Sagar Dam (Hydro Electric Project) is in which of the following districts?
- (a) Hoshiarpur
  - (b) Gurdaspur
  - (c) Pathankot
  - (d) None of the above
15. Harike Wetland falls in which one of the following districts?
- (a) Amritsar
  - (b) Tarn Taran
  - (c) Rupnagar
  - (d) Hoshiarpur
16. Who amongst the following became the first woman to win Sahitya Akademi Award?
- (a) Dilip Kaur Tiwana
  - (b) Amrita Pritam
  - (c) Ajit Kaur
  - (d) Sheila Bhatia
17. Which one of the following dances is not performed by women?
- (a) Sammi
  - (b) Gidha
  - (c) Kikli
  - (d) Luddi
18. Which one of the following musical instruments consists of a pair of wooden flutes?
- (a) Sarangi
  - (b) Bugchu
  - (c) Algoza
  - (d) Rabaab
19. There are ..... states in India.
- (a) 26
  - (b) 27
  - (c) 28
  - (d) 29

20. Lok Sabha represents the .....
- (a) States of Indian Federation
  - (b) Peoples of India as a whole
  - (c) Minorities of the Country
  - (d) Marginal of the County
21. The Attorney-General of India is appointed by the .....
- (a) Chief Justice of the Supreme Court
  - (b) Chairperson of the Lok Sabha
  - (c) President
  - (d) Prime Minister
22. E-governance stands for .....
- (a) Electrical-Governance
  - (b) Electronic-Governance
  - (c) Elective-Governance
  - (d) Exceptional-Governance
23. There are three organs in a government. Choose the wrong answer:
- (a) Legislature
  - (b) Executive
  - (c) President
  - (d) Judiciary
24. Which is an extra-Constitutional body?
- (a) Language Commission
  - (b) Election Commission
  - (c) NITI Aayog
  - (d) Finance Commission
25. The disease that is caused by viral infection is:
- (a) Typhoid
  - (b) Cholera
  - (c) Common cold
  - (d) Tetanus
26. The age of a tree can be found by:
- (a) Measuring its height
  - (b) Measuring its diameter
  - (c) Analysis of its sap
  - (d) Counting the annual growth rings in a section of its stem

27. Keoladeo National Park is located in:
- (a) Dehradun
  - (b) Bharatpur
  - (c) Mysore
  - (d) Chhattisgarh
28. The substance present in abundant amounts in sea water is:
- (a) Potassium chloride
  - (b) Common salt
  - (c) Sand
  - (d) Calcium carbonate
29. 'Gobar gas' contains mainly:
- (a) Carbond dioxide
  - (b) Methane
  - (c) Acetylene
  - (d) Ethylene
30. Diamond is chemically:
- (a) A mixture of metal carbonates
  - (b) Pure carbon
  - (c) A pure form of sand
  - (d) A mixture of calcium and magnesium phosphate
31. In transfer printing the dyes must be of
- (a) Volatile
  - (b) Nonvolatile
  - (c) Sublimative
  - (d) Evaporative
32. In pigment printing for stability of emulsion thickener
- (a) The Interfacial tension between two phase should be low
  - (b) The Interfacial tension between two phase should be high
  - (c) The Interfacial tension between two phase should be equal
  - (d) Does not depends on Interfacial tension between two phase
33. The sodium hydro sulphite is used as
- (a) Reducing agent
  - (b) Oxidizing agent
  - (c) Acid liberating agent
  - (d) Chelating agent
34. Sodium meta nitrobenzene sulphonate is used as
- (a) Mild reducing agent
  - (b) Buffer chemical
  - (c) Mild oxidizing agent
  - (d) Water softening agent

35. Class IIIrd of acid dyes are applied at pH value between
- (a) 1-2
  - (b) 10-11
  - (c) 6-7
  - (d) 2-3
36. Sodium alginate is preferred thickening agent in printing of
- (a) Disperse dyes
  - (b) Acid dyes
  - (c) Vat dyes
  - (d) Reactive dyes
37. Quaternary ammonium compound may be used as a
- (a) Reducing agent
  - (b) Dye fixing agent in acidic pH
  - (c) Levelling agent
  - (d) Oxidizing agent
38. Rapid fast colors are mixture of
- (a) Nonreactive form of antidiastates and naphthol
  - (b) Naphthol and base
  - (c) Benzene Diazonium chloride
  - (d) Meta nitro benzene
39. The azoic pigment formation in rapid fast color takes place at
- (a) Acidic pH
  - (b) Alkaline pH
  - (c) Neutral pH
  - (d) None of these
40. The rapid fast colors are developed by the method
- (a) Steaming in acid steamer in the fumes of acetic or formic acid
  - (b) Air free drying
  - (c) By passing in solvent solution
  - (d) By passing in basic solution
41. The  $\text{Na}_2\text{SO}_4$  is added in the wet development bath of rapid fast color to stop
- (a) The bleeding of naphthol in developing bath
  - (b) The reaction of naphthol and base
  - (c) To precipitate the naphthol
  - (d) To insolubilize the base
42. During vat dyeing the reducing atmosphere in bath is checked by
- (a) Phenolphthalein paper
  - (b) Vat yellow paper
  - (c) Filter paper
  - (d) Thermometer

43. SD, Microfine ,ultra microfine dyes are particle size of
- (a) Azoic dyes
  - (b) Sulphur dyes
  - (c) Vat dyes
  - (d) Disperse dyes
44. The detection of indigo dyes on fabric is done with  $\text{HNO}_3$  by having
- (a) Yellow spot with green ring
  - (b) Green spot with green ring
  - (c) Red spot with green ring
  - (d) Green spot
45. The indigoid and anthraquinone are the classification of
- (a) Disperse dyes
  - (b) Azoic dyes
  - (c) Vat dyes
  - (d) Basic dyes
46. In indigo dyeing of cotton warp sheet, the concentration of indigo in successive bath
- (a) Increase
  - (b) Decreases
  - (c) Constant
  - (d) Not applicable
47. In  $I_K$  method of vat dyeing the added salt is
- (a)  $\text{MgCl}_2$
  - (b)  $\text{CaCl}_2$
  - (c)  $\text{NaCl}$
  - (d)  $\text{KCl}$
48. Oxidation of vat dyeing is done at temperature of
- (a) 80-90 C
  - (b) 12-24 C
  - (c) 50-60 C
  - (d) 20-30 C
49. The soluble indigo is produced by the reaction of indigo molecules with
- (a) Sodium salt of chlorosulphonic acid
  - (b) Sodium salt of sulphonic acid
  - (c) Sodium salt of carboxylic acid
  - (d) Sodium hydrosulphite and sodium hydroxide
50. Indigosols color are applied to cotton fabric at temperature of
- (a) 40-50 C
  - (b) 10-20 C
  - (c) 80-90 C
  - (d) 90-100C



51. The presence of groups ortho position to dye molecules make dye suitable for mordanting
- (a)  $-\text{OH}$  ,  $-\text{COOH}$
  - (b)  $-\text{Cl}$  ,  $-\text{Br}$
  - (c)  $-\text{C}=\text{O}$  ,  $-\text{CHO}$
  - (d)  $-\text{C}=\text{C}-$  ,  $-\text{OH}$
52. The d block elements work as (Cr, Al , Fe) as a mordanting agent because
- (a) Presence of vacant s orbital
  - (b) Presence of vacant p orbital
  - (c) Presence of vacant d orbital
  - (d) Combination of a+b+c
53. The coupling pH in azoic dyeing should be
- (a) 4.5-5.5
  - (b) 6.0-8.0
  - (c) 8.5-9.5
  - (d) 10-11
54. In Sulphur dyeing the deeper shade can be obtained with
- (a) More than 6 % shade
  - (b) Less than 2 % shade
  - (c) More than 10 % shade
  - (d) 3 % shade
55. Why NaOH is not used as an alkali in cotton textile printing
- (a) It melts the fibre
  - (b) It swells the fibre
  - (c) It damage the printed design by swelling the fibre
  - (d) It react with dyes
56. British gum is used in textile printing as a
- (a) Thickener
  - (b) Softener
  - (c) Stiffener
  - (d) Solubilizing agent
57. The role of oil in water emulsion in printing paste preparation is as a
- (a) Solvent
  - (b) Wetting agent
  - (c) Solubilizing agent
  - (d) Thickener

58. Thiodiethylene glycol is used as a
- (a) Solvent in dyeing
  - (b) Solvent in printing
  - (c) Solvent in finishing
  - (d) Solvent in bleaching
59. The solubility of dyes in water depend on
- (a) Its chemical structure
  - (b) Size of molecules
  - (c) Presence of water solubilizing groups
  - (d) Combination of (a) and (c)
60. Roller printing has poor performance than screen printing because
- (a) It has limited no. of color application with controlling devices
  - (b) It has more defect in printing
  - (c) It has uneven printing
  - (d) None of these
61. The role of lint doctor blade in roller printing is
- (a) To clean the fabric
  - (b) To cut the washing blanket
  - (c) To clean the fibre and lint
  - (d) To remove the printing paste
62. The engraved roller are used in
- (a) Screen printing
  - (b) Transfer printing
  - (c) Flock printing
  - (d) Roller printing
63. To print by pigment printing the thickener is
- (a) Synthetic binder is used
  - (b) Starch based thickener are used
  - (c) Gum based thickener are used
  - (d) Solvents are used
64. Binders are chemically polymer of
- (a) Acrylic acid ester , Butadiene and Styrene
  - (b) Methyl cellulose
  - (c) Vinyl alcohol
  - (d) Vinyl chloride
65. The % of acetic acid( 98 %) require in acid dyeing of wool is
- (a) 2-3% on weight of wool
  - (b) 8-10% on weight of wool
  - (c) 0.5-0.6% on weight of wool
  - (d) 12-13% on weight of wool

66. Partition co-efficient of the dye should be very high for dyeing with
- (a) Batch process
  - (b) Semi-continuous process
  - (c) Both continuous and semi-continuous process
  - (d) Continuous process
67. Tailing effect is generally found in dyeing with
- (a) Continuous process
  - (b) Winch dyeing machine
  - (c) Jigger dyeing machine
  - (d) Both jigger and winch dyeing machine
68. 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
69. For printing, which of the following reactive dye should be used
- (a) Dichloro triazinyl
  - (b) Monochloro triazinyl
  - (c) Difluoro triazinyl
  - (d) None of the above
70. In the context of reactive dyeing of cotton with dichloro triazinyl dye, which of the following statements is correct
- (a) Exhaustion should be in alkaline pH but fixation should be in neutral pH
  - (b) Both the exhaustion and fixation should be neutral pH
  - (c) Exhaustion should be in neutral pH but fixation should be in alkaline pH
  - (d) Exhaustion should be in neutral pH but fixation should be in acidic pH
71. In thermosol dyeing of PET
- (a) Carriers play significant role in dye diffusion
  - (b) Carriers helps dyeing with lower temperature
  - (c) No carriers are used
  - (d) Carriers help in more dye uptake
72. Dyeing
- (a) Is an exothermic process
  - (b) Is an endothermic process
  - (c) Can be both exothermic and endothermic process
  - (d) Is sometimes endothermic and sometime exothermic process
73. Acrylic fibre is usually dyed with
- (a) Basic dye
  - (b) Direct dye
  - (c) Both basic and azoic colour
  - (d) Metal complex dye

74. Malachite green belongs to
- (a) Acid dye
  - (b) Cationic dye
  - (c) Disperse dye
  - (d) Vat dye
75. Material to liquor (M:L) ratio generally used in padding mangle is around
- (a) 1:10
  - (b) 1:1
  - (c) 1:20
  - (d) 1:30
76. Which of the following statement is correct
- (a) Indigoid vat dyes have better fastness property as compared to anthraquinone based dyes
  - (b) Indigoid vat dyes have inferior fastness property as compared to anthraquinone based dyes
  - (c) Both have equal range of fastness property
  - (d) Fastness cannot be predicted as such before dyeing
77. The optimum dye uptake of direct dye on cotton fabric
- (a) Increases with increasing dyeing temperature
  - (b) Decreases with increasing dyeing temperature
  - (c) Remain constant with temperature variation but rate of dyeing increases only
  - (d) Increases with increasing temperature, along with increased dyeing rate
78. Temperature range for thermosol dyeing of polyester
- (a) 90<sup>0</sup>-100<sup>0</sup>C
  - (b) 100<sup>0</sup>-120<sup>0</sup>C
  - (c) 130<sup>0</sup>-150<sup>0</sup>C
  - (d) 180<sup>0</sup>-200<sup>0</sup>C
79. In case of dyeing of two component blends, solid shade-dyeing is
- (a) Dyeing of two components with same tone but shade depth
  - (b) Dyeing of two components with different dyes
  - (c) Dyeing of only one component
  - (d) Dyeing both the components with same tone and same shade depth
80. In 1:2 metal complex dye
- (a) One metal atom complexes with two molecules of dye
  - (b) Two metal atom complexes with one atom of dye
  - (c) Two metal atom complexes with two atom of dye
  - (d) One metal atom complexes with one atom of dye

81. In discharge style of printing
- (a) Dyeing of the fabric is followed by printing
  - (b) Printing of the fabric is followed by dyeing
  - (c) Both the dyeing and printing happens together
  - (d) None of the above
82. Rongalite C is a
- (a) Reducing agent used for discharge printing
  - (b) Oxidizing agent used for oxidation of vat dye
  - (c) Bleaching agent used for bleaching of wool
  - (d) Desizing agent used for PET/Cotton blend fabric
83. Resist printing under reactive dye
- (a) Citric acid can be used as chemical resist
  - (b) Sodium carbonate can be used as chemical resist
  - (c) Sodium bicarbonate can be used as chemical resist
  - (d) Sodium silicate can be used as chemical resist
84. Choose the CORRECT answer: Transfer printing is possible for
- (a) Polyester and polyamide fibre
  - (b) Polyester and acrylic fibre
  - (c) Polyester and triacetate
  - (d) All of the above
85. To prepare a printing paste with basic dye
- (a) Anionically charged thickener should be used to make a complex with the dye
  - (b) Anionically charged thickener should not be used to avoid complex formation with the dye
  - (c) Mixture of anionic and cationic thickener should be used to form its complex
  - (d) None of the above
86. Choose the correct answer:
- (a) One of the problems in engraved roller printing is it's limitation in fabric width where screen printing may be the solution
  - (b) One of the problems in screen printing is it's limitation in fabric width where engraved roller printing may be the solution
  - (c) Engraved roller and screen printing has similar limitation in fabric width
  - (d) None of the above is true
87. In continuous dyeing range (CDR), the dyer should choose a
- (a) very high affinity dye
  - (b) low to medium affinity dye
  - (c) dye of no affinity
  - (d) medium to very high affinity dye

88. A textile dye in its' structure should have at least
- (a) One chromophore and one auxochrome group
  - (b) One chromophore group and one solubilizing group
  - (c) One chromophore and one reactive group
  - (d) Two chromophore and one solubilizing group
89. Dye-fibre interaction in case of wool fibre dyed with 1:1 metal complex dye is through
- (a) Electrovalent and covalent bond
  - (b) Coordinate and covalent bond
  - (c) Covalent and hydrogen bond
  - (d) Coordinate and electrovalent bond
90. Thermosol dyeing is related to the dyeing of
- (a) PET with disperse dyes
  - (b) Wool with metal complex dyes
  - (c) Acrylic with cationic dyes
  - (d) Nylon with reactive dyes
91. Affinity of super milling acid dye towards wool fibre is
- (a) Very high
  - (b) Medium
  - (c) Low
  - (d) Medium to low
92. In case of dyeing of wool/PET blend, the PET component
- (a) should be dyed only with low or medium energy dyes at lower temperatures (110-115°C)
  - (b) should be dyed only with high energy dyes at high temperatures (130 -140°C)
  - (c) should be dyed only with low energy dyes at boil without carrier (100°C)
  - (d) cannot be dyed at all
93. In case of dyeing of two component blends, cross-dyeing is
- (a) Dyeing of two components with same tone but shade depth
  - (b) Dyeing of two components with different dyes
  - (c) Dyeing of only one component
  - (d) Dyeing both the components with same tone and same shade depth
94. Styles of printing refers to
- (a) Clear relation between the dyestuff and the chemicals used to produce a print effect
  - (b) The design of print to be produce on to the fabric
  - (c) Machinery parts used to produce a print effect
  - (d) Clearness and brightness of the print design produced n to the fabric

95. In which machine, material to liquor (M:L) ratio is should be approximately
- (a) 1:2
  - (b) 1:5
  - (c) 1:30
  - (d) 1:10
96. In batch dyeing of cotton with reactive dyes, exhaustion should be done preferably
- (a) In neutral pH
  - (b) In alkaline pH
  - (c) In highly acidic pH
  - (d) None of the above is true
97. In dyeing of PET, carriers are used to
- (a) Accelerate the dye uptake
  - (b) Level the dyes inside the fibre structure
  - (c) Retard the dye uptake
  - (d) None of the above is true
98. In dyeing / printing, sodium hydrosulphite (Hydros) is used as
- (a) Reducing agent
  - (b) Stabilizing agent
  - (c) Leveling agent
  - (d) Oxidizing agent
99. In case of dyeing of wool/PET blend, the PET component
- (a) should be dyed only with high energy dyes at high temperatures (130 -140°C)
  - (b) should be dyed only with low energy dyes at boil without carrier (100°C)
  - (c) should be dyed only with low energy dyes at boil with carrier (100°C)
  - (d) cannot be dyed at all
100. Dyeing of polyester/cotton blend fabric can be carried out by
- (a) Vat dye
  - (b) Metal complex dye
  - (c) Mixture of disperse and reactive dye
  - (d) Mixture of reactive and chrome mordant dye

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