THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA, VADODARA

Ph. D. ENTRANCE TEST (PET) – 27th January 2019

Signature of Invigilators

Roll. No. | | | | | | |

(in figures as in Hall Ticket)

Textile Chemistry
(19/40)

Roll No. _____

_____

(in words)

Maximum Marks: 50 **No. Of Printed Pages : 8**

Instruction for the Candidate:

1. Write your Roll Number in the space provided on the top of this page.
2. This paper consists of **FIFTY (50)** multiple choice type questions. Each Question carries **ONE (1)** mark.
3. At the commencement of examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as below:
    a. To have access to the Question Booklet, tear off the paper seal on the edge of this cover page, Do not accept a booklet without sticker seal and do not accept an open booklet.
    b. Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faculty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy should be got replaced immediately by a correct booklet from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.
    c. After this verification is over, the Test Booklet Number should be entered on the OMR Answer Sheet and the OMR Answer Sheet Number should be entered on this Test Booklet.
4. Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.

Example: Ⓐ ● Ⓒ Ⓓ where (B) is correct response.

5. Your responses to the items are to be indicated on the OMR Answer Sheet under Paper – II only. If you mark your response at any place other than in the circle in the OMR Answer Sheet, it will not be evaluated.
6. Read instructions given inside carefully.
7. Rough Work is to be done in the end of this booklet.
8. If you write your Name, Roll Number, Phone Number or put any mark on any part of the OMR Answer Sheet, except for the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, such as change of response by scratching or using white fluid, you will render yourself liable to disqualification.
9. You have to return the original OMR Answer Sheet to the invigilator at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are however, allowed to carry original question booklet and duplicate copy of OMR Answer Sheet on conclusion of examination
10. Use only Blue/ Black Ball point pen.
11. Use of any calculator or log table etc., is prohibited.
12. There shall be no negative marking.

Textile Chemistry
(19/40)

Note: This paper contains **FIFTY (50)** multiple-choice questions. Each Question carries **ONE (1)** mark.

01) Bleached cotton fabric was sent to a laboratory for determination of copper number which is an estimate of the presence of
A) Hydroxyl groups
B) Carboxyl groups
C) Reducing groups
D) Oxidizing groups

02) 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

03) Which one of the following stereo structures of polypropylene is used for commercial fibre Manufacturing ?
A) Atactic
B) Syndiotactic
C) Isotactic & synsiotactic
D) Isotactic

04) The fibre which has a mineral origin is
A) Asbestos
B) Silk
C) Flax
D) Acrylic

05) The chemical that is used to convert soda cellulose to sodium cellulose xanthate in the manufacture of viscose rayon is
A) Carbon disulphide
B) Sodium xanthate
C) Sodium sulphide
D) Sodium hydroxide

06) The fibre that will float on water is
A) Nylon
B) Polyester
C) Acrylic
D) Polypropylene

07) The efficiency of the wash-n-wear treatment can be estimated by measuring its
A) Bending length
B) Tensile strength
C) Dye uptake
D) Crease recovery

08) Moisture regain values of Hemp fibre
A) 12 – 13 %
B) 16 – 18 %
C) 5 – 6 %
D) 1 – 2 %

09) Nylon 6 and Nylon 6,6 filaments are distinguished from each other by
A) Burning test
B) Melting point test
C) Optical microscopy
D) Density measurement

10) Match elements in Group – I and Group – II and choose the correct answers from amongst the alternatives a, b, c and d.

Group – I	Group – II
P – Optical brightening agent	1. Stilbene based compound
	2. Cationic compound
Q – Reducing agent	3. Sodium bisulphite
	4. Sodium hypochlorite
R – Oxidising agent	5. Sodium hydrosulphite
S – Dye fixing agent	6. Hydrogen peroxide

A) P-1, Q-3, R-4, S-2
B) P-6, Q-3, R-4, S-2
C) P-2, Q-3, R-4, S-5
D) P-1, Q-6, R-4, S-2

11) The dye bath of solubilise vat dye has
A) Alkaline pH
B) Neutral pH
C) Alkali & reducing agent
D) A reducing agent

12) Jute, flax and ramie belong to the family of
A) Hair fibres
B) Bast fibres
C) Leaf fibres
D) Frit fibres

13) The moisture regain (%) of nylon fibre is in the range of
A) 2.0 – 3.0
B) 3.5 – 4.5
C) 5.0 – 6.0
D) 6.5 – 7.5

14) Desizing of grey cotton fabric having starch based size cannot be done using.
A) Amylase enzyme
B) dilute HCl
C) hydrogen Peroxide
D) DMDHEU

15) A wool/Acrylic blend can be dyed to solid shade using combination of
A) Direct & Acid dye
B) Vat & Acid dye
C) Acid & Basic dye
D) Reactive & Direct dye

16) Following dye is suitable for sublimation transfer printing of polyester
A) Reactive dye
B) Vat dye
C) Acid dye
D) Disperse dye

17) Consider the elements in Group I and Group II and choose the correct alternative from amongst a, b, c and d.

Group – I	Group – II
P. Resin Finishing Q. Carrier R. Biopolishing S. Discharge printing	1. Polyester dyeing 2. Cellulose 3. DMDHEU 4. Hydrogen Peroxide 5. Pectinase 6. Sodium sulphoxylate formaldehyde

A) P-3, Q-1, R-2, S-6
B) P-6, Q-1, R-4, S-3 5
C) P-3, Q-6, R-1, S-
D) P-3, Q-6, R-4, S-1

18) The highest rate of production in printing is obtained on
A) Flat bed printing
B) Block printing
C) Digital printing
D) Rotary screen printing

19) A textile dye should have in its structure atleast
A) One azo and one reactive group
B) Two chromophores
C) One chromophore and one auxochrome
D) One solubilising and one reactive group

20) Compounds based on combination of nitrogen and phosphorous are used as
A) Water proofing agent
B) Antimicrobial agent
C) Flame retardants
D) Antistatic agent

21) Jet dyeing machines are built to used with M:L ratio of
A) 1:1
B) 1:50
C) 1:30
D) 1:8

22) Which one is not a surfactant?
A) Detergent
B) Wetting agent
C) Reducing agent
D) Dispersing agent

23) Mercerisation is carried out with NaOH of
A) 10 – 15 %
B) 18 – 25 %
C) 5 – 10 %
D) 25 – 35 %

24) The rubbing fastness is poor in case of following print
A) Pigment print
B) Reactive dye print
C) Disperse dye print
D) Vat dye print

25) Following is not a style of printing
A) Screen printing
B) Discharge printing
C) Resist printing
D) Brasso printing

26) Which of the following ager gives highest production?
A) Loop ager
B) Star ager
C) Pressure ager
D) Incubator

27) The most common thickener for printing with reactive dye is
A) Sodium alginate
B) CMC
C) Gum indalaca
D) None of these

28) A PET / COT blend fabric can be printed in solid shade using a combination of
A) Disperse / Vat dyes
B) Vat / Acid dyes
C) Acid / Basic dyes
D) Reactive / Disperse dyes

29) Swelling agent used during printing of nylon is
A) Sodium carbonate
B) Acetic acid
C) Phenol
D) Sodium sulphate

30) Brasso style of printing is carried out using
A) Common salt
B) Reducing agent
C) Acid liberating agent
D) None of these

31) You have different fibres but you get one colour
A) Union dyeing
B) Cross dyeing
C) None of these
D) Solid dyeing

32) Most of the disperse dyes in following hue, exhibits poor light fastness
A) Blue
B) Yellow
C) Red
D) None of these

33) Laundrometer is used to determine following property of dyed fabric
A) Rubbing fastness
B) Perspiration
C) Washing fastness
D) Light fastness

34) Mordanting is necessary while dyeing with following dye on cotton
A) Basic dye
B) Acid dye
C) Vat dye
D) Azoic dye

35) Under which condition of the dye bath, fast-to-milling acid dyes are applied
A) Neutral
B) Highly acidic
C) Alkaline
D) Mild acidic

36) Which acid is used for diazotisation of a base
A) Nitric acid
B) Nitrous acid
C) Hydrochloric acid
D) Acetic acid

37) Only light shades are possible with
A) Vat dyes
B) Direct dyes
C) Azoic dyes
D) Solubilised vat dye

38) Modified cationic dyes on acrylic fibre are held by
A) Covalent dye
B) Vander Waal force
C) Ionic interaction
D) None of these

39) The highest washing fastness in a dyed cotton fabric would be obtained if dye fibre bond is
A) Ionic
B) Hydrogen
C) Covalent
D) Vander Waal force

40) Bleaching of cotton using bleaching powder is carried out at
A) Room temperature
B) 50 – 60°C
C) 90°C
D) At boil

41) Which of the following consider as eco-friendly bleaching process
A) Hydrogen peroxide
B) Per acetic acid
C) Hypochlorite
D) Sodium sulphite

42) Under which category of desizing with sodium bromite falls
A) Hydrolytic desizing
B) Rot steeping
C) Acid desizing
D) Oxidative desizing

43) Which of the following is a batchwise open width machine
A) Winch machine
B) Open soaper
C) Jet dyeing machine
D) Jigger machine

44) Coagulating bath is used for spinning of
A) Nylon fibre
B) Polyester fibre
C) Viscose rayon fibre
D) Polyolefin fibre

45) Melt spinning is used for
A) Nylon fibre
B) Polyester fibre
C) Viscose rayon fibre
D) All of above

46) Condensation polymerisation cannot be used to produce
   A) Polyester
   B) Nylon 6
   C) Nylon 6,6
   D) Polyolefin

47) The cellulosic fibre obtained from leaf is
   A) Hemp
   B) Kenaf
   C) Ramie
   D) Sisal

48) The machine used for polyester dyeing is
   A) Jet
   B) Kier
   C) Winch
   D) Jigger

49) Soil release agent is more efficient on
   A) Synthetic fibres
   B) Cotton
   C) Jute
   D) Wool

50) Antistatic finish is applied to
   A) Polyester
   B) Cotton
   C) Wool
   D) None of these

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Rough Work: