

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA, VADODARA

Ph. D. ENTRANCE TEST (PET) – 7<sup>th</sup> August 2022

Signature of Invigilator

Roll.  
No.

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Paper - II  
Textile Chemistry (22/40)

Maximum Marks: 50

No. Of Printed Pages: 8

Instruction for the Candidate:

1. This paper consists of **FIFTY (50)** multiple choice type questions. Each Question carries **ONE (1)** mark.
2. There is no Negative Marking for Wrong Answer.
3. A separate OMR Answer Sheet has been provided to answer questions. Your answers will be evaluated based on your response in the OMR Sheet only. No credit will be given for any answering made in question booklet.
4. Defective question booklet or OMR if noticed may immediately replace by the concerned invigilator.
5. Write roll number, subject code, booklet type, category and other information correctly in the OMR Sheet else your OMR Sheet will not be evaluated by machine.
6. Select most appropriate answer to the question and darken appropriate oval on the OMR answer sheet, with black / blue ball pen only. **DO NOT USE PENCIL** for darkening. In case of over writing on any answer, the same will be treated as invalid. Each question has exactly one correct answer and has four alternative responses (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.  
**Example:** (A) (●) (C) (D) where (B) is correct response.
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. Calculators, Log tables any other calculating devices, mobiles, slide rule, text manuals etc are **NOT** allowed in the examination hall. If any of above is seized from the candidates during examination time; he/ she will be immediately debarred from the examination and corresponding disciplinary action will be initiated by the Center Supervisor as deemed fit.
10. **DO NOT FOLD** or **TEAR** OMR Answer sheet as machine will not be able to recognize torn or folded OMR Answer sheet.
11. **You have to return the 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 on conclusion of examination.



**Paper - II**  
**Textile Chemistry (22/40)**

**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 & syndiotactic  
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 hydroxid
- 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.
- | <b>Group – I</b>              | <b>Group – II</b>          |
|-------------------------------|----------------------------|
| P – Optical brightening agent | 1. Stilbene based compound |
| Q – Reducing agent            | 2. Cationic compound       |
| R – Oxidising agent           | 3. Sodium bisulphite       |
| S – Dye fixing agent          | 4. Sodium hypochlorite     |
|                               | 5. Sodium hydrosulphite    |
|                               | 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.
- Amylase enzyme
  - dilute HCl
  - hydrogen Peroxide
  - DMDHEU
- 15) A Wool/Acrylic blend can be dyed to solid shade using combination of
- Direct & Acid dye
  - Vat & Acid dye
  - Acid & Basic dye
  - Reactive & Direct dye
- 16) Following dye is suitable for sublimation transfer printing of polyester
- Reactive dye
  - Vat dye
  - Acid dye
  - Disperse dye
- 17) Consider the elements in Group I and Group II and choose the correct alternative from amongst a, b, c and d.
- | <b>Group – I</b>      | <b>Group-II</b>                     |
|-----------------------|-------------------------------------|
| P. Resin Finishing    | 1. Polyester dyeing                 |
| Q. Carrier            | 2. Cellulose                        |
| R. Biopolishing       | 3. DMDHEU                           |
| S. Discharge printing | 4. Hydrogen Peroxide                |
|                       | 5. Pectinase                        |
|                       | 6. Sodium sulphoxylate formaldehyde |
- P-3, Q-1, R-2, S-6
  - P-6, Q-1, R-4, S-3
  - P-3, Q-6, R-1, S-5
  - P-3, Q-6, R-4, S-1
- 18) The highest rate of production in printing is obtained on
- Flat bed printing
  - Block printing
  - Digital printing
  - Rotary screen printing
- 19) A textile dye should have in its structure at least
- One azo and one reactive group
  - Two chromophores
  - One chromophore and one auxochrome
  - One solubilising and one reactive group
- 20) Compounds based on combination of nitrogen and phosphorous are used as
- Water proofing agent
  - Antimicrobial agent
  - Flame retardants
  - Antistatic agent
- 21) Jet dyeing machines are built to used with M:L ratio of
- 1:1
  - 1:50
  - 1:30
  - 1:8
- 22) Which one is not a surfactant?
- Detergent
  - Wetting agent
  - Reducing agent
  - Dispersing agent
- 23) Mercerisation is carried out with NaOH of
- 10 – 15 %
  - 18 – 25 %
  - 5 – 10 %
  - 25 – 35 %
- 24) The rubbing fastness is poor in case of following print
- Pigment print
  - Reactive dye print
  - Disperse dye print
  - Vat dye print
- 25) Following is not a style of printing
- Screen printing
  - Discharge printing
  - Resist printing
  - Brasso printing
- 26) Which of the following ager gives highest production?
- Loop ager
  - Star ager
  - Pressure ager
  - Incubator
- 27) The most common thickener for printing with reactive dye is
- Sodium alginate
  - CMC
  - Gum indalaca
  - None of these

- 28) A PET / COT blend fabric can be printed in solid shade using a combination of
- Disperse / Vat dyes
  - Vat / Acid dyes
  - Acid / Basic dyes
  - Reactive / Disperse dyes
- 29) Swelling agent used during printing of nylon is
- Sodium carbonate
  - Acetic acid
  - Phenol
  - Sodium sulphate
- 30) Brasso style of printing is carried out using
- Common salt
  - Reducing agent
  - Acid liberating agent
  - None of these
- 31) You have different fibres but you get one colour
- Union dyeing
  - Cross dyeing
  - None of these
  - Solid dyeing
- 32) Most of the disperse dyes in following hue, exhibits poor light fastness
- Blue
  - Yellow
  - Red
  - None of these
- 33) Laundrometer is used to determine following property of dyed fabric
- Rubbing fastness
  - Perspiration
  - Washing fastness
  - Light fastness
- 34) Mordanting is necessary while dyeing with following dye on cotton
- Basic dye
  - Acid dye
  - Vat dye
  - Azoic dye
- 35) Under which condition of the dye bath, fast-to-milling acid dyes are applied
- Neutral
  - Highly acidic
  - Alkaline
  - Mild acidic
- 36) Which acid is used for diazotisation of a base
- Nitric acid
  - Nitrous acid
  - Hydrochloric acid
  - Acetic acid
- 37) Only light shades are possible with
- Vat dyes
  - Direct dyes
  - Azoic dyes
  - Solubilised vat dye
- 38) Modified cationic dyes on acrylic fibre are held by
- Covalent dye
  - Vander Waal force
  - Ionic interaction
  - None of these
- 39) The highest washing fastness in a dyed cotton fabric would be obtained if dye fibre bond is
- Ionic
  - Hydrogen
  - Covalent
  - Vander Waal force
- 40) Bleaching of cotton using bleaching powder is carried out at
- Room temperature
  - 50 – 60°C
  - 90°C
  - At boil
- 41) Which of the following consider as eco-friendly bleaching process
- Hydrogen peroxide
  - Per acetic acid
  - Hypochlorite
  - Sodium sulphite
- 42) Under which category of desizing with sodium bromite falls
- Hydrolytic desizing
  - Rot steeping
  - Acid desizing
  - Oxidative desizing
- 43) Which of the following is a batchwise open width machine
- Winch machine
  - Open soaper
  - Jet dyeing machine
  - 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:**