

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

BARGARH/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTIGADAG/SPKMIHTVENKATGIRI

ANNUAL/SEMESTER EXAMINATION -April/May-2018

[Regulation-2014]

Year/Semester

time:3 Hours

Subject Code & Name: 3.3 Chemical processing of textiles -I

Max.marks: 80

PART – A

[Answer all the questions in two/ three sentences]

[2X10=20 marks]

1. Write about the chemical composition of cotton fibre ?
2. What are dry preparatory processes for dyeing and printing ?
3. Name some of the kier boiling assistants.
4. Write objects of desizing.
5. What is the effect of electrolyte in dyeing ?
6. Write about material to liquor ratio ?
7. Define fastness properties in dyeing ?
8. What is termed as Auxochrome ?
9. What is vatting ?
10. How reactive dyes are classified ?

PART – B

[Answer all the questions in detail]

[4+8]x 5= 60 marks]

- II. A. Explain important properties of cotton ?
- B. Describe with neat diagram the process of kier boiling ?

[OR]

- C. Explain the importance of preparatory processes carried out before dyeing and printing ?
- D. Describe various methods of desizing ?

III. A. Name various methods of singeing process which are the most popular ?

B. How dyes and pigments are classified ?

[OR]

C. Write something about the concept of banned dyes ?

D. Compare hypochlorite bleaching with hydrogen peroxide bleaching ?

IV. A. Explain the parameters in dyeing [i] percentage of shade [ii] percentage of exhaustion.

B. Explain the role of electrolyte, time, and temperature in dyeing process ?

[OR]

C. Explain the functions of chemicals used in dyeing of cotton materials ?

D. Describe the method of cotton dyeing with direct dyes and explain the importance of aftertreatments given to direct dyed materials ?

V. A. How vat dyes are classified ?

B. Explain various steps in carrying out the dyeing of cotton materials using vat dyes ?

[OR]

C. Write about the role of caustic soda and sodium hydrosulphite in vat dyeing ?

D. Differentiate between vat dyes and solubilised vat dyes ?

VI. A. Write about the effect of alkali & salt additions in reactive dyeing ?

B. Describe the method of dyeing bi-functional reactive dyes ?

[OR]

C. How reactive dyes are classified ?

D. Explain the advantages and disadvantages of dyeing with cold brand and hot brand reactive dyes?

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6 marks - 3

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

BARGARH/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTIGADAG/SPKMIHTVENKETGIRI

ANNUAL/SEMESTER EXAMINATION – April/May – 2018

[Regulation -2011]

Year/Semester :

time : 3 hours

Subject code & Name : 3.3 chemical processing of textiles – I

Max. marks: 80

PART – A

[Answer all the questions in two/three sentences]

1. Name important characteristics of cotton fibre.
2. What is scouring ?
3. Objects of shearing and cropping.
4. What is the affinity of dyes ?
- 5 Why aftertreatments are required for direct dyed material ?
6. Effect of MLR in dyeing. Write in Brief?
- 7 Classify vat dyes ?
8. What are solubilised vat dyes ?
9. Give names of 2 cold brand and 2 hot brand reactive dyes ?
10. What are bi-functional reactive dyes ?

PART – B

[4+8]x 5= 60 marks]

[answer all the questions in detail]

II. A. Narrate the dry preparatory process required for fabrics before dyeing and printing ?

B. Explain the bleaching process of cotton using hydrogen peroxide.

[OR]

C. Briefly explain the morphological structure of cotton ?

D. Describe the various methods of scouring cotton materials ?

III. A. Brief the process sequences in cotton textile processing.

B. Explain with neat diagram of the process of gas singeing machine ?

[OR]

C. Write down about auxochromes and chromophores in dyes and pigments.?

D. Explain the basic concepts in dyeing such as solubility and affinity ?

IV. A. Differentiate between the parameters of dyeing [i]percentage of exhaustion[ii] percentage expression ?

B. Explain the aftertreatments to improve fastness properties of direct dyed cotton materials ?

[OR]

C. How the dyes and pigments are classified ?

D. Describe the method of dyeing cotton with sulphur dyes ? Briefly note the yarn tendering ?

V. A. Describe the method of application of vat dyes ?

B. Explain oxidation and reduction process in carrying out vat dyeing ?

[OR]

C. Describe the method of dyeing using solubilised vat dyes ?

D. Differentiate between vat dyes and solubilised vat dyes ?

VI. A. What is the principle of reactive dyeing ?

B. Explain the process conditions in getting good shades in reactive dyeing.

[OR]

C. How reactive dyes are classified? Write PAD-BATCH method of dyeing cotton ?

D. Describe the method of dyeing bi-functional reactive dyes on cotton materials ?

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BARGARH/FULIA/GUWAHATI/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHITI
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DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

SEMESTER EXAMINATION NOV/DEC 2017 (2014-REGULATION)

Time: 3 Hours

Max.Marks: 80

Semester : III SEMESTER

Subject : 3.3 CHEMICAL PROCESSING OF TEXTILES-I

PART - A

(2 x 10 = 20)

Answer all questions in one or two sentences:

1. Write the effect of strong acids on cotton fabric.
2. What do you mean by Mending?
3. Which types of dyes are banned?
4. Write the principle of J-Box machine.
5. What do you mean by percentage expression? In which machine it is used?
6. What are ice colours? Why they are called so?
7. Write any two commercial names of vat dyes.
8. How do you assess the availability of optimum quantity of Hydros in vatting?
9. Write the drawbacks of Hydrolysis of Reactive dyes.
10. What kind of bonding takes place in Reactive dyes? Write the pH requirements.

PART - B

(12X5=60)

(Answer the following questions in detail either A & B combination or C & D combination)

11. A) Write any four chemical properties of cotton fibre.
B) Explain the bleaching of cotton with process control parameters using Sodium Hypochlorite.
OR
C) Name the preparatory processes required for dyeing and printing.
D) Explain the bleaching of cotton with Hydrogen peroxide. Mention advantages over Hypochlorite bleaching.
12. A) Differentiate between Auxochrome and Chromophore with examples.
B) Define the terms solubility and affinity used in dyeing. Explain the concept of Banned dyes.
OR
C) Differentiate between Dyes and Pigments.
B) Describe working of gas singeing machine with neat diagram.

P.T.O.

13. A) Differentiate between Shade % and Exhaustion %.
B) Write the sequence of operations used for dyeing of cotton with Azoic colours with chemicals used and their functions.

OR

- ~~C~~ Brief on the different methods of dissolution of Naphthol.
D) What are the disadvantages of sulphur dyes? Write their complete method of application on cotton.
14. A) Brief on various methods of Vat dyeing.
B) Explain the procedure for applications of solubilised Vat dyes on cotton.

OR

- C) Classify the Vat dyes based on their methods of applications.
D) Write the advantages of solubilised vat dyes over Vat Dyes. Explain various steps used in dyeing of cotton with vat dyes.
15. A) What are the favourable conditions for Hydrolysis of Reactive dyes?
B) Explain in detail the dyeing of cotton fabric with Reactive HE dyes.

OR

- C) Why Reactive Dyes are called so? Brief on their classification.
D) Explain the effect of pH, Temperature, Time and Electrolyte during dyeing of cotton with Reactive dyes.

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DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

SEMESTER EXAMINATION NOV/DEC 2017 (2011-REGULATION)

Time: 3 Hours

Max. Marks: 80

Semester : III SEMESTER

Subject : 3.3 CHEMICAL PROCESSING OF TEXTILES-I

PART - A

2 x 10 = 20

1. Give examples for dry preparatory process.
2. Write any two objectives of scouring process.
3. Define MLR.
4. Give one example for batch wise and continuous preparatory machine.
5. Define percentage of shade.
6. List out two draw backs of Direct dyes.
7. Write the two advantages of Vat dyes.
8. What is the role of Hydros in Vatting of vat dyes?
9. List out the different types of Reactive Dyes.
10. What is the pH required for fixation of Reactive dyes? Write names of some chemicals used.

PART - B

(Answer the following questions in detail either A & B or C & D combination.)

11. A) Brief on the importance of Desizing process involved for cotton fabric. 4
B) How do you scour the cotton fabric for subsequent bleaching process? 8
Explain with suitable recipe and write the function of chemicals used.
Or
C) Write any four advantages of Hydrogen peroxide bleaching. 4
D) How do you bleach the scoured cotton fabric for producing light shed? 8
Explain with suitable recipe and write the function of chemicals used in peroxide bleaching.
12. A) Define Auxochrome and Chromophore. 4
B) Explain the principle operation of Vertical kier machine with neat line diagram. 8
Or
C) Define the term: Affinity and Substantively. 4
D) How do you produce the goods for full white for the cotton fabric? 8
Explain the process sequence with suitable recipe.

P.T.O.

13. A) Brief on effect of MLR Direct dyeing. 4
B) Explain in detail the effect of Temperature, Time and Electrolyte in Direct dyes dyeing

Or

- C) How do you improve the fastness properties of Direct dyed fabric? 4
D) Explain in detail the dyeing of cotton fabric using Sulphur dyes with typical recipe and write the function of auxiliaries used. 8
14. A) Brief on chemical requirements and its function for Vatting of Indigo dyes. 4
B) Describe the method of dyeing cotton with solubilised vat dyes. 8

Or

- C) Differentiate between Vat and Solubilised Vat dyes. 4
D) Explain the method of dyeing cotton with vat dyes. 8
15. A) How reactive dyes differ from direct dyes? 4
B) Explain in detail the suitability of Reactive dyes among different types for Handloom Industry with your justification and explain its dyeing process. 8

Or

- C) Define the concept of Bi-functional reactive dyes. 4
D) Describe various process contact parameters applicable to dyeing of cotton with reactive dyes. 8

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DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY
III SEMESTER (BACK PAPER) EXAMINATION – NOV/DEC-2015



Max. Marks:80

3.3 CHEMICAL PROCESSING OF TEXTILES-IV

Time : 3 Hours

PART-A

I. Answer all questions in ONE or TWO sentences.

(2x10=20)

- i. Souring.
- ii. After treatment of direct dyed cotton goods.
- iii. Auxochrome.
- iv. Naphtholation
- v. Antichlore treatment
- vi. Carcinogenic dyes.
- vii. Protruding fibers.
- viii. Bi-functional reactive dyes.
- ix. Hydrophobic character.
- x. Exhaustion of dyes.

PART-B

Answer the following questions in detail.

II. a. What is kier boiling? Describe the pressure kier with suitable diagram and nomenclature. (06)

b. Why singeing is essential for textile fabrics? Which type of singeing process is very much popular in textile industry? (06)

(OR)

c. Justify that Hydrogen Peroxide is an universal bleaching agent. What is use of peroxide killer? How it will be used in bleaching process? (06)

d. What is bleaching sequence for converting grey cotton fabrics to dry bleached fabrics? (06)

III.a. What are direct dyes? How to apply them on cotton fabric by conventional method of dyeing? Write in details with recipe. (06)

b. How to improve washing and light fastness of direct dyed cotton goods in dyeing laboratory? (06)

(OR)

c. What is sequence of azoic dyeing? How to apply on cotton yarn? Describe the different steps during dyeing. (06)

d. Classify the reactive dyes according to application? How to apply the hot brand reactive dye on cotton yarn in bulk form by conventional method? (06)

IV.a. Describe the process of dyeing of cotton yarn with vat dyes by exhaust method. Write the Function of various auxiliaries used in dyeing process. (06)

b. What are solublised vat dyes? How to apply on textile material? Write the application in details with functions of chemicals? (06)

(OR)

c. Describe the importance of various factors which effects the dyeing of cotton goods with vat dyes during practical conditions of dyeing? (06)

d. Reactive dyes are more popular in textile industry, why? Write technical reasons in detail. (06)

V. a, Why cotton dyed sulphur black suffers from bronziness and tendering? How these defects are rectified? (06)

b. Explain the various after treatments required for improving the brightness and fastness of sulphur dyed fabrics? (06)

(OR)

c. Distinguish between dyes and pigments. Give at least five points. (06)

d. What is correction of shade? How to strip the direct dyed cotton fabric for matching the same with direct dyes? (06)

VI.a. Describe defect and remedies encountered during dyeing of cotton fabrics by Exhaust method. (06)

b. Distinguish between solublised vat dyes and vat dyes? Give at least five points. (06)

(OR)

c. Describe the application of sulphur dyes on bleached cotton fabrics. Select suitable machine with diagram for dyeing. (04)

d. What do you understand by "EFFICIENT BLEACHING" process? (04)

e. What do you mean by 20 volume Hydrogen Peroxide solution? (04)



DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY
III SEMESTER (REGULAR) EXAMINATION – NOV./DEC. 2015



3.3 CHEMICAL PROCESSING OF TEXTILES – I

TIME: 3 Hours

Max. Marks: 80

PART A

- I. Answer all the questions in two or three sentences. (2 x 10=20)
- How to rectify missing ends and slubs in grey fabric?
 - What are the types of "J" box.
 - Define auxochrome.
 - Write the importance of affinity in dyeing.
 - Write the purpose of soaping after dyeing.
 - Percentage of dye on dyed fibre is dependent of MLR – True (or) False? Justify.
 - What are the dyeing temperatures of Ik, Iw group of Vat dyes?
 - What is the role of Hydros in Vat dyeing?
 - Define Nucleophilic substitution.
 - Give the name of any two classes of water soluble dyes?

PART B

Answer all the questions in detail.

- II. a. Give the chemical composition of cotton fibre. (04)
- b. Explain bleaching process of cotton by using Hydrogen Peroxide with suitable recipe and process conditions. (08)
- OR
- c. Why enzymatic desizing is most preferable than other methods? (04)
- d. Explain Shearing and Cropping process with neat sketch. (08)
- III. a. Write the difference between dyes and pigments. (04)
- b. Explain scouring process by using Kier machine with neat line diagram. (08)
- OR
- c. Write the process sequence for preparation of cotton fabrics for printing. (04)
- d. Why gas singeing is most preferable than other methods? (08)

- IV. a. Give the short notes on (a) Percentage of shade, (b) M:L Ratio (04)
b. Write in detail about Naphtholation, Diazotization and Coupling reaction of Azoic dye? State the importance of the same. (08)

OR

- c. Give short notes on (a) Percentage of Exhaustion, (b) Percentage of Expression. (04)
d. Explain in detail about dyeing of Cotton with Sulphur dyes with suitable recipe and process sequence. (08)

- V. a. What is solublised Vat dye? How it differs from Vat dyes in dyeing process? (04)
b. Explain in detail about dyeing cotton with Vat dye. (08)

OR

- c. how to strip Vat colour from dyed cotton fabric? Give the procedure. (04)
d. Describe the dyeing of Cotton with solublized Vat dye? (08)

- VI. a. Give the classification of Reactive dye based on their reactive system. (04)
b. What are the factors affecting dyeing with Reactive dye on cotton? Elaborate. (08)

OR

- c. Write short notes on Low Salt (LS) Reactive dyes. (04)
d. Explain the dyeing process of Cotton with Cold Brand Reactive dyes. (08)



INDIAN INSTITUTE OF TECHNOLOGY

MAHARAJA GURU NANAK DEV UNIVERSITY, JALANDHAR

DIPLOMA IN TEXTILE TECHNOLOGY

THIRD SEMESTER (OLD) - BACK PAPER - APRIL/MAY 2010

AA - CHEMICAL PROCESSING OF TEXTILES-I

Time: 3 Hrs

Max Marks: 80

PART-A

I. Answer all Questions in one or two sentences: 10x2=20

- a) Differentiate shearing and singeing.
- b) Hydrogen peroxide is an universal bleaching agent - justify.
- c) How do you check the residual starch after de-sizing?
- d) Define the term Affinity.
- e) What do you mean by 60% expression in 'bowl padding mangle'?
- f) What is the name of 'Ice Colours'? Write the name of coupling components used in this dyeing.
- g) Write the role of Hydros in Vatting process.
- h) Write any two advantages of solubilised vat dyes.
- i) How do you classify the Reactive dyes based on its application?
- j) Write any two advantages of Bifunctional Reactive dyes.

PART-B

Answer the following questions in detail:

- II a) Briefly explain on chemical composition of cotton fibre. 4
- b) How do you prepare 100% cotton fabric for pale shade and write its important criteria. 8
- OR
- c) Write the drawbacks of Chlorite Bleaching (Any important four) 4
- d) Explain in detail the bleaching of cotton fabric with hydrogen peroxide. 8
- III a) Differentiate Auxochrome and Chromophore with examples. 4
- b) Explain in detail the working of double side gas singeing machine for cotton fabric. 8
- OR
- c) Give your comments on impact of solubility of dyeability. 4
- d) Draw the neat line diagram of Kier machine and brief on its working procedure. 8
- IV a) Write the effect of MLR on level dyeing. 4
- b) How do you produce dark shade by less dyes and temperature, write the dyes suitability. 8
- OR
- c) Write the function and mechanism of soda ash in direct dyes dissolution and NaCl in dyeing. 4
- d) Explain in detail the dyeing procedure for production of 8% sulphur black shade. 8

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- V a) Why the vat dyes are mostly used for border of white dhoti? Give your comments. 4
b) Explain in detail the application of Solubilised vat dyes on cotton fabric with recipe. 8

OR

- c) How do you identify the sufficient amount of hydros and caustic availability in vatting solution? 4
d) Explain in detail the classification of vat dyes with brief on its dyeing parameters. 8
- VI a) Why the dyes is called as "Reactive dyes" and write its importance in Handloom Industry? 4
b) What do you mean by Hydrolysatation of Reactive dyes and How do you avoid in dyeing? 8

OR

- c) Bi-functional Reactive dye's effluent is less compare to normal dyes: True or False: - Justify. 4
d) Explain in detail the application procedure of Reactive dyes in continuous method. 8

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DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY
THIRD SEMESTER (NEW SYLLABUS/ BACK PAPER) - APRIL/MAY 2016

3.3 – CHEMICAL PROCESSING OF TEXTILES – I

Time: 3 Hrs

Max. Marks: 80

PART – A

NOTE:- ANSWER ALL QUESTIONS IN ONE OR TWO SENTENCES.

[2 x 10 = 20]

- I
- Distinguish between souring & scouring.
 - Hypo Chlorites bleaching is not an eco-friendly in nature-justify.
 - What do you mean by CBR in pretreatment? Write any one advantage.
 - Write the concept of banned dyes.
 - What is the MLR used in winch and soft flow dyeing machine.
 - What is the impact of formaldehyde treatment on fastness & Eco-friendly of direct dyed fabric.
 - Write the use of chemicals for vatting process
 - Distinguish between vat dyes and solublished vat dyes.
 - Define Hydrolysis of Reactive Dyes.
 - Write any two commercial names of reactive dyes.

PART – B

Answer the following questions in details:

- II a) Write any four chemical properties of cotton fibre. 04
b) How do you produce permanent white on cotton fabric to produce the value of WI 130? 08
- OR
- c) Write the objects of pretreatments involved in wet processing sequences. 04
d) Explain in details the various dry preparatory process involved before scouring process 08
- III a) Differentiate dyes and pigments with suitable examples. 04
b) Explain in details the working principle of J-Box machine with neat line diagramme. 08
- OR
- c) Give two examples for chromophores and auxochromes 04
d) Explain in details the scouring in Kier Boiling Machine if fabric contains coloured border. 08
- IV a) Write the effect of MLR on depth of shade & Hydrolysis in Reactive dyes dyeing. 04
b) What do you mean by sulphur black tendering? How do you avoid? 08
- OR
- c) Brief on Diazotization process involved in Azoic colours dyeing process. 04
d) Explain in details the process involved in Azoic colours dyeing process. 08
- V a) How do you classify the vat dyes based on its application? 04
b) Explain in details the application of IN class of vat dyes on 100% cotton fabric. 08
- OR
- c) Write the draw backs of vat dyes applications in textile industry. 04
d) Explain in details the oxidation of vat and sulphur dyed cotton fabric for light and dark shade. 08
- VI a) Write the advantages of Reactive dyes over vat dyes 04
b) Explain in details the dyeing procedure of Remazol dyes on cotton fabric for 3 % shade. 08
- OR
- c) Brief on the principle of Bi-functional reactive dyes mechanism over monofunctional dyes. 04
d) Reactive "M" brand dyes are used in cottage industry: Give comments & write its procedure. 08

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DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY

THIRD SEMESTER EXAMINATION(2014- REGULATION) NOV/DEC-2016

3.3 CHEMICAL PROCESSING OF TEXTILES

TIME: 3 Hours

Max. Marks: 80

"PART-A"

Note: Answer all Questions within two or three sentences.

2x10

- i) Differentiate between shearing and singeing.
- ii) Composition of Raw cotton
- iii) Difference between Dye & Pigment.
- iv) Difference between Auxochrome & Chromophere
- v) Effect of M:L ratio in dyeing.
- vi) Reason for Poor rubbing fastness in Azoic colour dyed goods.
- vii) Reason for not using solublised vat dyes for deep shades.
- viii) Any two types of Vat dyes.
- ix) Purpose of Soaping of Dyed goods
- x) Two advantages of Reactive dyes.

'PART-B'

- I. Answer the following questions in details:-
 - a) Write the actions of Acid (Strong and Weak) and Alkali (Strong & weak) on cotton. 4
 - b) How the Insoluble starch becomes soluble while desizing. Explain Enzyme desizing of cotton material. How will you test the presence of starch in material. 8

OR

 - c) Compare bleaching of cotton with bleaching powder and Hydrogen peroxide. 4
 - d) Describe the process of bleaching of cotton material with Hypochlorite solution mentioning the effect of (i) Temp. (ii) pH (iii) concentration 8
 - II. a) Write short notes on "Banned dyes". 4
 - b) With the help of a neat Sketch , describe the working of a Modern vertical Kier mentioning precautions also. 8
- OR
- c) What do you understand by the term "affinity" and "Solubility" in dyeing. 4
 - d) Explain various processes sequences for Converting grey cotton fabric into full white. 8
- III. a) Explain the term "Percentage of Exhaustion and Percentage expression". 4
- b) Describe the dyeing of cotton material with Azoic colours. Mention the function of each chemicals used during dyeing. 8
- OR
- c) How cationic dye fixing agent improve the fastness properties of cotton material dyed with direct dyes. 4
 - d) Explain in detail the dyeing of cotton material with Sulphur dyes mentioning the functions of (i) sodium sulphide and (ii) Soda ash. 8

- IV. a) Show with the help of chemical reaction conversion of Insoluble Vat dyes into soluble Leuco compounds. 4
- b) explain in details the dyeing of cotton material with solubilised vat dyes. 8
- OR
- c) Difference between "vat" and "vatting". 4
- d) Explain in detail the application of Vat dyes on cotton material. 8

- V. a) What are reactive dyes and why they are called so? 4
- b) Explain in detail the application of any cold brand reactive dyes on cotton material mentioning the function of alkali and salt used in dyeing. 8
- OR
- c) Why more drastic conditions are required in case of dyeing cotton with Hot brand reactive dyes than cold brand reactive dyes. 4
- d) Explain in details the application of any hot brand reactive dye on cotton material and mention the function of alkali and salt used during dyeing. 8

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DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY
THIRD SEMESTER EXAMINATION-(2011 REGULATION) NOV/DEC-2016

3.3 CHEMICAL PROCESSING OF TEXTILES-I

TIME: 3 Hours

Max. Marks:80

- I. Give reasons of the following questions within two or three sentences. 2x10=20
- Differentiate between M and H brand of reactive dyes.
 - Higher Exhaustion of Bi-functional reactive dyes.
 - Desizing process is essential before scouring.
 - Viscose and cotton are having similar properties
 - Sodium chlorite bleaching is not popular in textile industries.
 - For curtain fabric vat dyes are preferred.
 - Some Azoic dyes are banned dyes in textile industries.
 - Caustic Soda is added prior to addition of Hydrosulphite during vatting.
 - Vat dyes are very useful for cotton dyeing.
 - M:L ratio effects the dyeing process.
- II)a) Briefly write the properties of cotton and its chemical structure. 4
b) How to scour the cotton fabrics by modern kier? Draw the diagram and suitable recipe for the kier boiling. 8
- OR
- Write effect of pH on hypochlorite bleaching of cotton. 4
 - Justify, direct dyes are more popular in textile industries? Write the different after treatments with suitable recipe. 8
- III)a) Enumerate the effects of temperature during dyeing of cotton fabrics. 4
b) What is the importance of removing the protruding fibers from the surface of fabrics? Write in details about gas singeing machine with suitable diagram. 8
- OR
- Write the function of common salt and soda ash while dyeing with reactive dyes. 4
 - Write the sequence of operations during application of Azoic dyes on cotton goods? Indicate the details of diazotization with exact reaction. 8
- IV)a) Classify the vat dyes according to chemical constitution. 4
b) Explain eco-friendly desizing process. Why Enzyme desizing is popular in modern period? Explain the method with suitable recipe. 8
- OR
- Write in brief about bi-functional reactive dyes. 4
 - How to apply the sulphur dyes on cotton materials? Discuss their drawbacks. 8
- b

- V)a) Clarify the concepts of hydrolysis in dyeing with reactive dyes. 4
b) Describe the defects and remedies encountered during dyeing of cotton fabric by exhaust method. 8

OR

- c) What are the factors involved during bleaching of cotton yarn with H_2O_2 ? Write in detail with suitable chemical reactions. 4
d) How to bleach the cotton fabric by sodium hypochlorite solution? Write the mechanism details. 8

- VI)a) Distinguish between dyes and pigments, at least 4 points. 4

- b) Describe the application of solublised vat dyes on cotton fabrics. Why it is very much popular for light Shade dyeing? 8

OR

- c) How to convert 20 cc hydrogen peroxide having 100 volume strength into 10 volume. 4
d) Enumerate the process control parameters and process conditions being applied while dyeing with Hot brand reactive dyes. 8

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DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY

ANNUAL/SEMESTER EXAMINATION APRIL/MAY-2017 (2014-REGULATION)

**Time : 3 Hours
THIRD SEMESTER**

Max.Marks : 80

3.3 CHEMICAL PROCESSING OF TEXTILES - I

Part - A

2 x 10=20 Marks

- 1 What is singeing?
- 2 Define Enzyme desizing?
- 3 Define saponification in scouring?
- 4 Explain banned dyes ?
- 5 What are the importance of M:L in Dyeing ?
- 6 Write main objects of after treatments of direct dyed materials?
- 7 Classify vat dyes?
- 8 Importance of soaping in vat dyeing?
- 9 Why reactive dyes are called as reactive?
- 10 Define bi-functional Reactive dyes.

PART-B

12 x 5= 60 Marks

- 11 A) Explain the fabric preparatory processes in a textile mill? (4)
B) Describe the working of gas singeing machine with neat diagram. (8)
(Or)
C) Write short notes on chemical composition of raw cotton fibres? (4)
D) Describe the bleaching of cotton materials using hydrogen peroxide? (8)
- 12 A) Write short notes on emulsification and saponification reactions in scouring? (4)
B) Explain types of kiers and the working of Kier boiling carried out for cotton materials with neat diagram of Kier. (8)
(Or)
C) Write on J-Box method of scouring and bleaching? (4)
D) How the Dyes and Pigments are Classified? (8)
- 13 A) Explain the terms of percentage shade and percentage exhaustion ? (4)
B) How direct dyes are classified ? what are the various process conditions in direct dyeing ? (8)
(Or)
C) Explain the defect "tendering of sulphur dyed fabrics" ? (4)
D) Describe the method of dyeing cotton materials using naphthol dyes ? (8)

P.T.O.

- 14 A) How the vat dyes are classified as per its chemical constitution? (4)
B) Explain the vatting process and the method of dyeing IN Class of vat dyes on cotton? (8)

(Or)

- C) What do you mean by Solubilised vat dyes? (4)
D) Explain the process of dyeing of cotton with solubilised vat dyes. (8)

- 15 A) How the reactive dyes are classified? (4)
B) Describe the dyeing method of Vinyl sulphone dyes? (8)

(Or)

- C) What is the process conditions normally applicable to reactive dyeing? (4)
D) Describe the Pad Batch Dyeing process using reactive dyes? (8)

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
BARGARH/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTI
GADAG/SPKM VENKATAGIRI
DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY
SEMNESTER (BACK PAPER) EXAMINATION-APRIL/MAY-2017 (2011-REGULATION)

Time : 3 Hours
III SEMESTER

3.3 CHEMICAL PROCESSING OF TEXTILES-I

Max.Marks:80

PART- A

10x2=20 Marks

- 1 Write any two chemical properties of cellulosic fibers.
- 2 Define scouring and its need.
- 3 Define affinity and solubility.
- 4 Differentiate between dyes and pigments.
- 5 Define percentage expression.
- 6 Briefly write about percentage shade and M:L ratio.
- 7 Give classification of Vat dyes according to chemical constitution.
- 8 Differentiate between Vat and solublised Vat dyes.
- 9 What do you mean by M, H and ME brands in reactive dyes?
- 10 Write two advantages of bi-functional reactive dyes.

PART-B

12 x 5=60 Marks

- 11 A) What is the need of preparing grey cotton goods for dyeing and printing? (4)
- B) Describe in detail the process conditions used for bleaching cotton with Hypo-chlorites. (8)
- (Or)
- C) Draw morphological structure of cotton with proper labeling. (4)
- D) Write in detail about scouring of cotton with specific mention of chemical reactions involved. (8)
- 12 A) Define Chromophore and Auxochrome. (4)
- B) Describe the sequence of operations generally used for preparation of cotton goods for dyeing and printing (8)
- (Or)
- C) Why some dyes are banned? (4)
- D) Describe the working of J-box used for continuous bleaching of cotton goods to produce full white material. (8)

P.T.O.

8

- 13 A) What do you mean by *In-grain dyes*? (4)
- B) Describe in detail the steps for dyeing of cotton with *ice colours*. (8)
- (Or)
- C) What do you understand by *sulphur black tendering*? (4)
- D) Why the direct dyed goods suffer from *poor washing fastness*? Write notes on after treatments for improving fastness properties. (8)
- 14 A) Classify Vat dyes according to their *method of application*. (4)
- B) Write in detail the method of applying *solublised Vat dyes on cotton* with functions of chemicals used. (8)
- (Or)
- C) How the presence of *caustic soda and sodium hydro-sulphite* is checked during *vatting of Vat dyes*? (4)
- D) Describe in detail the steps used for *application of Vat dyes on cotton* with functions of chemicals used. (8)
- 15 A) What do you understand by the term *hydrolysis of reactive dyes*? (4)
- B) Explain the *pad-batch method of dyeing cotton fabrics with reactive dyes*. (8)
- (Or)
- C) Briefly write about function of using *cationic fixing agent for cotton dyed with reactive dyes*. (4)
- D) How will you apply *bi-functional reactive dyes on cotton*? Clearly write about *time, temperature, pH and function of chemicals used*. (8)
