

2013

TEXTILES CHEMICAL PROCESSING-I

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) Singeing of synthetic or blended fabric containing synthetic fibre is carried out
 - a) After dyeing
 - b) Before dyeing
 - c) Both (a) and (b) are possible
 - d) None of these.
- ii) Bio-singeing of cotton fabric is carried out by using
 - a) Amylase b) Lipase
 - c) Cellulase d) Protease.
- iii) Scouring process is carried out to remove
 - a) Hydrophobic matter b) Hydrophilic matter
 - c) Colouring matter d) Size material.
- iv) 'Suint Scouring' is a term associated to which of the following fibre ?
 - a) Silk b) Wool
 - c) Polyester d) None of these.
- v) The accurate statement(s) from the following is/are

- a) synthetic fibres always require bleaching
- b) bleaching is never required for synthetic fibres
- c) improper temperature control in fibre manufacturing may necessitate bleaching
- d) none of these.
- vi) Continuous scouring is possible by
- a) Kier b) Winch
- c) Padding mangle *J*-box d) Jigger.
- vii) Which of the following bleaching agents bleaches cotton fabric at room temperature ?
- a) H_2O_2 b) Bleaching powder
- c) NaClO_2 d) None of these.
- viii) 'Causticization' is carried out on cotton to improve
- a) Lustre b) Brightness
- c) Strength d) Dye ability.
- ix) Which one of the following fibres is more sensitive to alkali ?
- a) Wool b) Cotton
- c) Silk d) None of these.
- x) Which of the following is/are used for industrial mercerisation ?
- a) Potassium hydroxide b) Liquor ammonia
- c) Lithium hydroxide d) None of these.
- xi) Blueing agents increase whiteness due to
- a) complementary colouration
- b) phosphorescence
- c) fluorescence
- d) bleaching.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. a) Show a flow chart of chemical processing of *P/C*
(polyester cotton) blended fabric.

b) During acid desizing by pad-roll-batch process of cotton material, the acid impregnated fabric roll is given a slow continuous circular motion. Why ? Explain briefly.

3 + 2

3. a) Name different suitable desizing agents for carrying out desizing of knitted materials.

b) Discuss the role of size in preparation of coloured materials.

c) Why long liquor process is preferred to short liquor process in the preparation of silk fabrics. 1 + 2 + 2

4. a) " H_2O_2 is a universal bleaching agent". Justify the statement.

b) Write the advantages and disadvantages of H_2O_2 bleaching comparison with other bleaching agent.

c) In which Ph NaClO_2 bleaching is carried out ?

2 + 2 + 1

5. a) Why hard water has no adverse effect on synthetic surfactants unlike soaps ?

b) Why sodium hydroxide cannot be used for jute scouring ? 3 + 2

6. a) What is the objective of heat-setting ?

b) Compare (in a tabular form) the distinguishing features among loom state setting, intermediate setting and after setting of polyester fabric. 1 + 4

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Briefly discuss the Gas singeing method and mention the different process parameters.

b) Draw a schematic diagram of Gas singeing.

c) Write the merits and demerits of Gas singeing. $7 + 5 + 3$

8. a) What is 'Kier' ?

b) Classify the different types of kier.

c) Show a schematic diagram of any one of above kier with labelling.

d) Write the function of different important parts of above mentioned kier. $1 + 3 + 6 + 5$

9. a) What are the impurities present in the grey cotton fabrics ?

b) What is the CMC value of a surfactant ? What role does it play in chemical processing of textile materials ?

c) What is the significance of cloud point of a surfactant ?

d) Briefly discuss the importance of specification and emulsification during traditional cotton scouring ?

$4 + 4 + 1 + 6$

10. a) What is 'Braium Activity Number' and its significance ?

b) How is it measured ?

c) What do you mean by 'HLB' value and its significance ?

d) Briefly discuss the 'Cuprammonium fluidity' method of estimation of cellulose degradation. $3 + 4 + 3 + 5$

11. Write short notes on any *three* of the following : $5 + 5 + 5$

a) Wool scouring

b) Degumming of Silk

c) Fluorescent brightening of cotton fabric

d) Processing of colour goods

e) Hot merceriation.