Instructions:

1. Attempt six questions out of which Q. 1 is compulsory.
2. Answer each next main question on new page.
3. Figure to the right indicate full marks.
4. Illustrate your answer with sketches and flow chart wherever necessary.
5. Use of nonprogrammable electronic pocket calculator permissible.
6. Mobile and any communication devices are not allowed in exam hall.
7. Assume suitable data wherever necessary.

Q.1 Attempt any Ten. (20)
1. Define MLR and give two examples.
2. What are the objectives of ‘Finishing’?
3. Enlist the different methods of Mercerization.
4. Write the chemical formulae and names of any two- chlorine based bleaching agents.
5. Why is stabilizer added during hydrogen peroxide bleaching?
6. Why are chlorine based bleaching agents avoided for bleaching?
7. Write the chemical names and chemical formulae of any two exhausting agents.
8. Write any four objectives of desizing.
9. Write the names and the chemical formulae of the chemicals used in reactive dyeing.
10. Differentiate between Printing and Dyeing.
11. Why are gums used in print paste formulation?
12. Enlist the different methods of printing.
13. Explain significance of scouring in brief.
14. Name any two chemical and two mechanical finishes.
15. Define Temporary and Permanent Finish.

Q.2 Attempt any Two. (16)
1. With a neat labeled diagram, explain the working of gas singeing machine. Also write the precautions to be taken while starting the machine.
2. Write the procedure of dyeing of cotton using direct dyes and reactive dyes.
3. Enlist the ingredients of printing paste. Write the function of each ingredient in the print paste formulation.

Q.3 Attempt any Two. (16)
1. Write a detailed note on the different method of desizing textiles. Write the advantages and limitations of the preferred method of desizing.
2. Draw a neat labeled diagram of a jet dyeing machine and winch dyeing machine.
3. Write a detailed note on the different methods of printing textiles.
Q.4 **Attempt any Two.**
1. With a neat labeled diagram, explain the principle and working of continuous scouring of cotton on CBR.
2. Describe the working principle of pad-chain mercerization process with the help of a neat labeled diagram.
3. With the help of a neat labeled diagram, explain the working principle of a rotary printing machine. Also mention its advantages and limitations.

Q.5 **Attempt any Two.**
1. What are OBA’s and Bluing agents? How do they differ from each other? Write the procedure of Combined scouring, bleaching and Optical brightening of cotton.
2. Explain in detail, the classification of colour based on application.
3. Write the recipe and procedure for printing of cotton using pigments and reactive dyes by adopting direct style of printing.

Q.6 **Attempt any Two.**
1. Elaborate meaning of degumming of silk. Explain different methods of degumming.
2. What are reactive dyes? Give the classification of the same. Also write the dyeing procedure of the same.
3. Explain the different styles of printing. Give the recipe and procedure for discharge style of printing for vat dyed substrate.

Q.7 **Attempt any Two.**
1. What is calendaring? With a neat labeled diagram, explain the different effects achieved on calendaring machine.
2. Write the procedure of dyeing of polyester by HTHP method and Thermosol method.
3. Write a detailed note on the agers used in fixation of print. Draw a neat labeled diagram of Star ager and Festoon ager.

Q.8 **Attempt any Two.**
1. Write a detailed note on the different types of chemical finishes used for cotton. Also mention two objectives and applications each of the different types of finishes.
2. What are retarders? Explain the chemistry involved in the functioning of different types of retarders used in the dyeing of acrylic with cationic dyes. Also enlist the different methods of dyeing acrylic fibres.
3. Write the recipe and the procedure of printing of polyester using disperse dyes and nylon using acid dyes by adopting direct style of printing.

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