

TIME = 1H.

Q1. Write a short note on following -

(i) Singing

(ii) Sharing

(iii) Transfer of Printing

(iv) Dyeing with vat dye

(v) High pressure High temperature dyeing

5X3=15

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31 मार्च 19/11/18

ANSWER SHEET.

DBP-I.

Ans 1) SINGING - It is the process of producing fibres present on the surface of the fabric and yarn. Singing is two types. (i) Yarn Singing (ii) Fabric Singing - It is necessary in swing threads or in other words in swing threads the producing fibres have to be burn out. So that they may not create trouble while passing through needle. It is done while winding the yarn from rings tubes or supply packages from Spinning department. Yarn Singing is done by passing the yarn bet. two hot plates maintaining the temp. of 150°C .

Fabric Singing - The fabric is passed through singing m/c so that the producing fibres on the surface of fabric may burn out. 3 types of singing m/c (i) Plate Singing (ii) Roller Singing (iii) Gas Singing. Gas Singing m/c consist of one or more burners giving continuous flat or vertical flame produce by a mixture of compressed air and petrol. Flame is emerged through a narrow slit which is adjustable with respect width & thickness of the fabric. The slit is parallel to the horizontal weft of the yarn of fabric when the fabric is drawn over the flame of high speed ($150\text{m to }160\text{m/min}$). The flame is burn out without damaging the cloth. After Singing cloth is passed between a pair of draw roller revolving in water base. So that the risk of fire is reduced.

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(ii) SHARING - Sharing is the process in which the protruding ends and extra width threads are cut down with the help of scissors. So that they may not spoil the finish of the fabric and the quality may not be deteriorated.

(iii) TRANSFER PRINTING - Disperse dyes are able to sublime at temp. from 170°C to 250°C . The specific temp. at which sublimation occurs varies according to particular disperse dye.

This process involves printing disperse dye according to predetermined design on suitable paper. The printed paper and textile material are then passed bet. heated rollers at the required temperature. Under these conditions the disperse dye mol. transfer to textile material. This process is used mainly with atleast 65% thermoplastic fibres.

(iv) DYEING WITH VAT DYE - The application is occurs in five stages.

(a) Aqueous dispersion - The insoluble vat dye is dispersed in water.

(b) Vatting - The chemical reduction of the vat dye to produce soluble, reduced or leuco form from the dye. This is achieved by Sodium hydrosulphite, Sodium hydroxide and water. The sodium hydrosulphite chemically reduced the vat dye in alkaline conditions.

(c) Absorption of dye mol. by the fibre - The cellulosic material is introduced into the dye liquor. To achieve adequate exhaustion, an electrolyte is added to the dye liquor and temp. may be increased depending on

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the specific vat dye. For specific vat dye the temp. varies 20 to 60°C. The addition of the electrolyte alters the equilibrium of the dye liquor so as to increase the substantivity of the dye mol. of the fibre. During this stage of dye application the textile material must be kept immersed in the dye liquor to prevent premature oxidation of the leuco compound.

(d) Re-oxidation of dye mol. within the fibre - Once within the polymer system of the fibre the leuco form of the vat dye has to be oxidised and converted to its original colour and insoluble form of the dye. Oxidation of leuco compound can be achieved by atmospheric oxygen or by mild reagent sodium perborate. So its convert to original insoluble vat dye.

(e) Soaping off vat dyes - Some insoluble vat dye may be deposited on the surface of textile material. So removed to prevent poor sub-fastness as well change the shade. Soaping-off which is boiling the dyed material and removes the surface dye.

(v) High temperature dyeing - This dyeing technique is used in disperse dye and temp. above the boil (in the range 100 to 130°C) under pressure ranging from 0 to 170 kPa. This method of dyeing is also called pressure dyeing. The technique causes the fibres to swell even more than 100°C so that the dye mol. enter and penetrate deeper into the fibre's polymer system. High temp. dyeing is particularly useful for dyeing polyester fibres.

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