Leather Product Technology - I

Q.1 Mean form - Mean form is two dimensional shape of a last which is obtained by drawing the mean of outside & inside form of the last.

stepwise process

(i) Masking of last with masking tape

(ii) Draw different - point
- (i) Ball point (inside & outside)
- (ii) centre line (front)
- (iii) Vamp point. (cross section of joint path & front centre line)
- (iv) Back centre line
- (v) Mark back height - point

(iii) Take out side form & Inside form

(iv) ~~Draw~~ Past out side form on the chart paper and cut the shape.

(v) Draw Inside form and cut

(vi) Take the mean of both out & inside form.

Q.2. Ans:- Oxford

(i) Take the mean form and Draw the shape on chart paper

(ii) mark vamp point

(iii) Mark instep point 55-60mm apart from vamp point.

(iv) ~~Draw~~ Mark Tongue point - 10mm apart from Instep point

(v) Draw perpendicular from instep and tongue point toward feather edge.

(vi) Draw top line

(vii) Draw different stylines to complete the Quarter, counter, vamp and Tongue.

(viii) use formula to make the distance for two consequtive eyelets $d = \frac{D}{n-1}$

where n = no. of eyelets

(ix) Draw stitch & put the instruction on the standard such as folding, net etc

(x) Lasting margin must be indicated in lasting allowance.

Ans. 3

CLASSIFICATION OF ADHESIVE ACCORDING TO ITS ORIGIN :

No adhesive can satisfy all the conditions laid down as above. The adhesives have a large number of industrial application depending upon the degree of which different adhesives satisfy the above requirements they find their application to the respective industries. According to the source of origin the adhesive can be classified in the following groups:

a. Animal Origin.
b. Vegetable Origin.
c. Mineral Origin.
d. Synthetic resins and latex.

Animal origin

The basic material of this adhesives derives from skins, hides, bones of animal, cow's milk, fish, egg, animal blood etc. There are four principal materials largely used in adhesive manufacture.

1. Gelatin and Glue.
2. Fish Glue.
3. Casin.
4. Albumin.

Vegetable origin

The adhesives of this kind are derived from vegetable kingdom of nature i.e. from maize, potato, cassare, various kinds of acasias, pines and other trees. The vegetable base adhesives may be divided in to the following groups:

1. Flours and Starches.
2. Dextrines.
3. Water soluble gums.
4. Gum Resins.
5. Cellulosic Materials.

Mineral origin

There are some adhesives which are based on a material of mineral origin or inorganic materials. The only material in this groups of major interest is sodium silicate.

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Synthetic resins

The adhesives based on synthetic resin actually make the revolutionary changes in the footwear industry. There are large number of chemical synthetic resins which are being used as a basic raw-material for making synthetic adhesives. among these some are :

1. Phenolic (Phenol formaldyhide)
2. Urea formaldyhide
3. Polyurethane
4. Vinyl (Vinyl acetate & Vinyl alcohol)
5. Acrylic
6. Rubber latex,
7. Poly chloroprene,
8. Nitro cellulose.

(4)

(i) Upper leather (Properties)

→ good tensile strength & stitch tear strength
→ It has Elasticity and plasticity both.
→ Good tear strength which enable to bear the cuts, stitch holes and decorative perforation without causing any manufacturing problem.
→ High flexing endurance.
→ Water vapour permeability
→ C.T leather has good Heat resistance.
→ Excellent thermal properties
→ Good Colorfastness

(ii) Toe puff and Stiffner

→ Stiff but resilient
→ ability to withstand moulding and shape retention.
→ light in weight and even substance
→ Must cut & Skive easily.
→ Ability to hold tacks & stitches.

(iii) Sole

→ Abrasive resistance
→ Light in weight
→ Good flexing endurance
→ Slip resistance
→ Water and heat proof
→ Durable

(iv) Insole

→ Good stitch tear resistance
→ Ability to hold adhesive tacks and stitches.
→ Good tensile strength
→ Good degree of flexibility
→ ~~Good wear~~ tensile Even in substance.

Ans.5

ARCHES OF THE FOOT

The bones of a strong healthy human foot are held together by a network of ligaments, tendons and muscles. These bones are arranged in such a way that they form four separate natural arches which run lengthwise and cross wise of the foot. These arches of the foot are not at all rigid, as they do not anchored to permanent, immovable abutments. The arches give support to the foot. These are resilient, pliable and also responsive to the thousand angulation of the human foot when it is in motion and action. The foot is arched longitudinally on the inside and outside and transversely at either end of the metatarsals. These can also be viewed when looking at the impression made by a pair of foot. [Fig. 63]

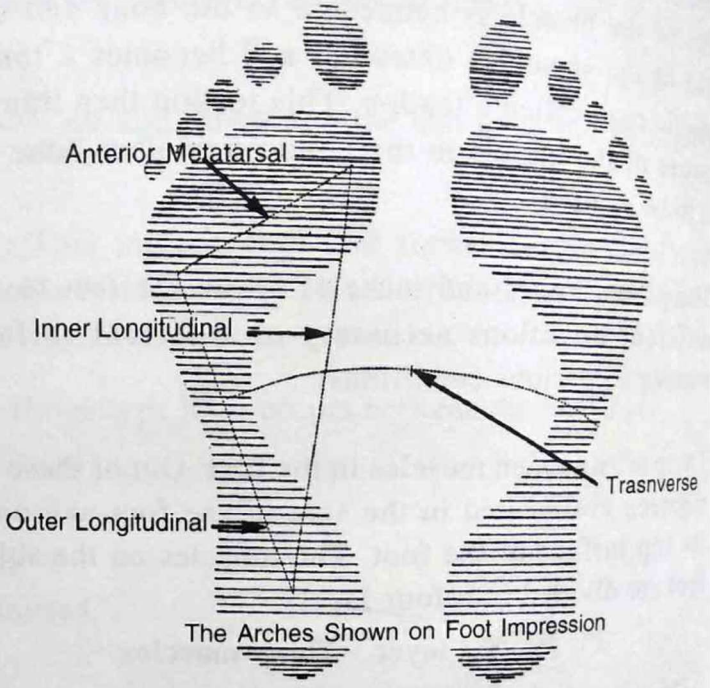

Fig. 63

INNER LONGITUDINAL ARCH :

This arch is between OsCalcis and first three metatarsals, which includes Scaphoid and cuneiforms. It has flexibility and provides for shock absorption and propulsion.

OUTER LONGITUDINAL ARCH :

This arch is between oscalcis and 4th and 5th metatarsal passing through cuboid. This arch is more or less flat and lacks mobility. This arch is very much suited for supporting the weight of the body.

TRANSVERSE ARCH :

This arch formed by the both foot and crosses through the base of the 5th metatarsal, the cuboid and cuneiforms. It is independent with inner longitudinal arch, but more rigid than the inner longitudinal arch and protects the main blood vessels and nerves supplying the sole.

ANTERIOR - METATARSAL - ARCH :

This arch is only visible (apparent) when there is no weight on the forepart of the feet. This arch is formed across the head of the five metatarsals. The strong ligaments in this metatarsals which joins them together prevents the arch spreading too much and a disproportionate amount of pressure going on to the middle metatarsals heads when the foot bears the weight of the body.

4. LAST

[Classification of Last; Various Parts of a shoe Last; Differnce between the 'Human feet' and 'Last'; Manufacuring of Last]

LAST

The word "LAST" came from the word "LAEST" which means a foot print, a foot track, and a foot trace. Last is not the exact replica of the foot but resemble them in out line. It is a reproduction of approximate shape of the human foot. It provides the shape and fittings of a shoe made on it. As lasts are the fundamental of manufacturing a shoe it carries a great responsibilities. Before modelling a shoe last, one should strictly consider the following points [Fig. 87].

a. The anatomy of foot

b. The trend of the fashion

Last is a three dimensional (3-D) form based on the shape and movement of the foot. It therefore determines shape, size and inner dimensions of the shoe. To provide foot comfort while wearing a shoe, the last is designed with several special features. Two major features are (1) Toe spring (2) Heel pitch.

Beside these the ball, instep and heel girth play a major role while making a pair of shoe last.

CLASSIFICATION OF LAST

Material wise	Construction wise	Purpose wise	Plating wise	Heel wise
Wooden	Solid block	Lasting	Heel plated	Without heel
Plastic	Scoop block	Pre forming	Toe plated	Low heel (10-15 m.m)
Metallic	Conventional hinge	Finishing	Half plated	Medium heel (26-40 mm)
	Telescopic hinge		Full bottom plated	High heel (40 mm above)

TYPES OF SHOE LAST :

There are four types of shoe lasts which are being used by the shoe industry as a whole.

* SOLID BLOCK LAST
* SCOOP BLOCK LAST
* ORDINARY OR CONVENTIONAL HINGE LAST
* TELESCOPIC HINGE LAST

a) SOLID BLOCK LAST :

This is a last made with single block of material. It is mainly used for modeling and manufacturing of Chappal, sandal and wide open ladies bellies. [Fig. 87a]

Fig. 87a

b) SCOOP BLOCK LAST :

It is a two part last. A cut is made as shown by a saw machine which removes a large portion from the top. The fastening is made by means of a spring and a plug. For unlasting a shoe from the last the upper portion is separated first, then it becomes easy to unlast the shoe from the last. Most of the hand made shoe makers are using this last.[Fig. 87b]

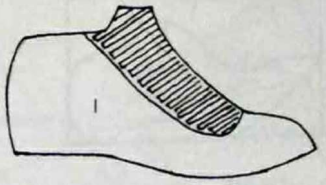

Fig. 87b

c) ORDINARY OR CONVENTIONAL HINGE :

It is also a two part last but differs entirely from scoop last. A 'V' cut is made on the block as shown in to facilitate the hinging system. A metal piece connecting the front

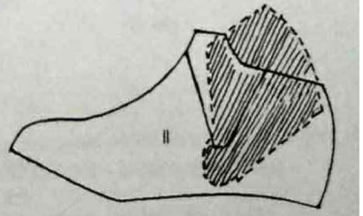

Fig. 87c

Ans. 6 (I and 2)

Ans. 6. (III)

(6) (iii) Lasting & underlay margin

Lasting margin – Lasting margin is the allowances which is given at bottom (feather edge) of each components for pasting of upper to the insole and sole. In toe area lasting margin – 16 mm
middle region – 20 mm.
seat region – 18 mm
lasting margin depends upon type of leather. In soft leather margin margin is less.

Underlay margin

This is the margin given in the component which is under the other component. eg in the stitching of counter and quarter. counter overlays quarter so underlay margin will be given in quarter. Underlay margin is 10 mm.