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Assignment : "All hand instruments  
used in Surgical -  
procedures"

Program : BS (D.T)  
Department : Allied Health Science.

Q1: Enumerate all hand instruments used in the dental clinic along with their uses in detail and diagrams?

## -: HAND INSTRUMENTS USED IN SURGICAL PROCEDURE :-

- \* Local Anesthesia Syring and disposable Syring, needle, cartilage.
- \* Sterilize gauze and Cotton rolls.
- \* Cotton plier.
- \* Perioprobe.
- \* Mouth Mirror.
- \* Periapical / Surgical curette.
- \* Bone file.
- \* Bone chisel and mallet.
- \* Periosteal elevator.
- \* Straight elevator.
- \* Root elevator / cryers.
- \* Scalpel.
- \* Tissue forceps.
- \* Explorer.
- \* Root Tip picks.
- \* Saliva ejector tip / Suction tip.
- \* Retractors.
- \* Mouth Mold prop.
- \* Hand pieces.
- \* Hemostate.
- \* Needle Holder / Driver.
- \* Suture Needle and Suture Scissors.

Tissue Scissors.

Rongeurs. and Extraction forceps.

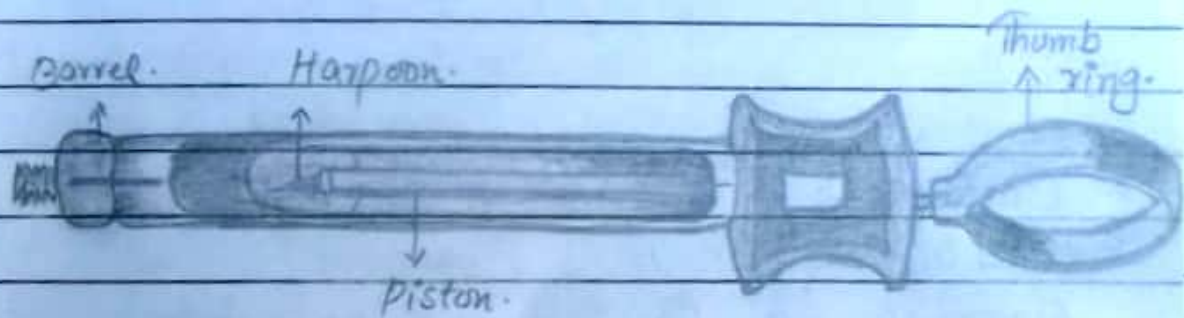
## Local Anesthesia Syring::

### FUNCTION:-

To administer local Anesthesia. They used to inject analgesic to the gums surrounding the teeth that will be worked on and allow the patient to not feel pain during procedure.

### Characteristics:-

Aspirating and self aspirating Syring. Aspirating Syring has a brob that insert the capsula.



**Disposable Syring::** is a large plastic syring with a blunt 18 Gauge needle. Disposable Syring can be sterilized multiple times before it must be discarded.

## \* Sterilize gauze::

FUNCTION:- Absorbent clot, aid in hemostasis, clean instrument used in all aspects of Dentistry.

Characteristics:- 2x2 Gauze inches in size, white thin / thick woven absorbent fibers.

## \* Cotton rolls:

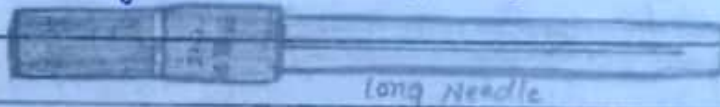
FUNCTION: To isolate teeth and absorb saliva, acts as a protective tissues barrier, aids in endodontic diagnostics.

characteristics: Fluid absorbent rolls.

## \* Anesthetic Needles:

FUNCTION: To inject anesthesia into soft tissues.

characteristics: Varies in gauge and length typically short for maxillary and typically long for mandibular.



long needle



short needle

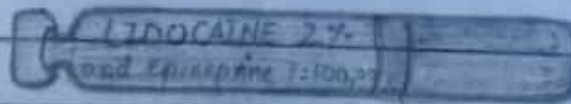
(ANESTHETIC NEEDLES)

## \* Cartilages:

LIDOCAINE: (Red).

FUNCTION: An Anesthetic with epinephrine.

characteristics: 2% lidocaine, has a red band on the Carpule, most Used Anesthetic.



1-7 ml injection

Red band.

\* POLOCAINE: (Tan).

FUNCTION: A non-epinephrine anesthetic used when patients cannot, epinephrine. e.g.: HTN patients have

characteristics: 3% polocaime plain, has a tan band on the Carpule.

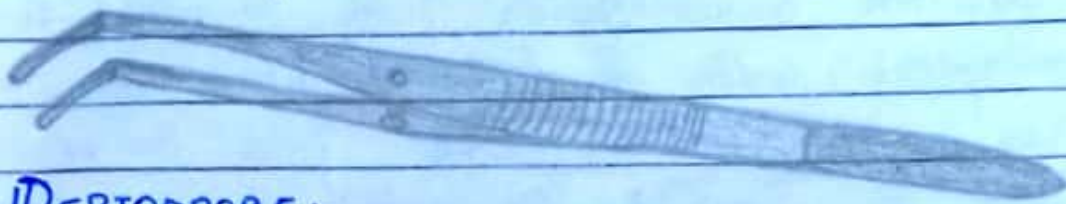
\* COTTON PLIER ::

Cotton plier also called dressing plier.

FUNCTION ::

To grasp or transfer materials in and out of the oral cavity (E.g. RCT instruments or wedges etc)

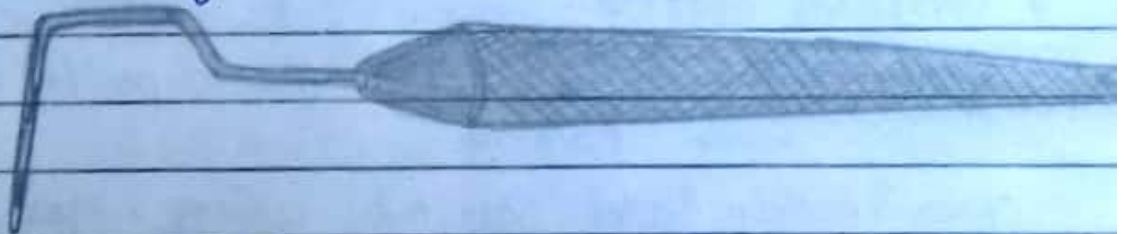
Characteristics :: plain and serrated or un-serrated tips, variety of size and angled tip.



\* PERIOPROBE ::

FUNCTION :: It is an instrument with incremental marks on the tip to measure their periodontal pockets.

Characteristics :: Design with different increments. E.g.: 1mm, 3mm and PSR probe.

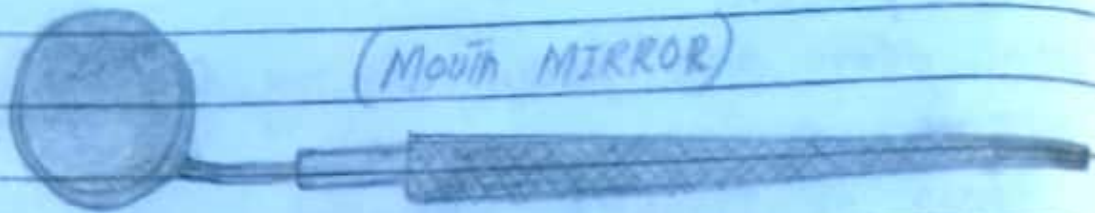


\* MOUTH MIRROR ::

FUNCTION :: it is also used to retract & protect tongue, cheeks and lips. To provide indirect vision and reflect light into the mouth.

characteristics ::

Accurate image from flat surface mirror, image magnified with concave mirror.



(MOUTH MIRROR)

## \* PERIAPICAL / SURGICAL CURETTE:

### FUNCTION:

They used to removed Small amounts of Granulation tissues debris from The Tooth Sockets periapical lesion or Surgical Sites.

They also removed Cyst from The extraction Site or Surgical Site, to use for gross Tissue debridement.

### Characteristics:

Angled and Single or double-ended instrument.  
Various Sizes and Shapes.

### Types:

#### \* UNIVERSAL CURETTE:

Function: To Scale and remove deposits & Stain, remove Calculus.

Characteristics: Blades has two cutting edges, rounded toe, round on The back Single or double ended instrument.

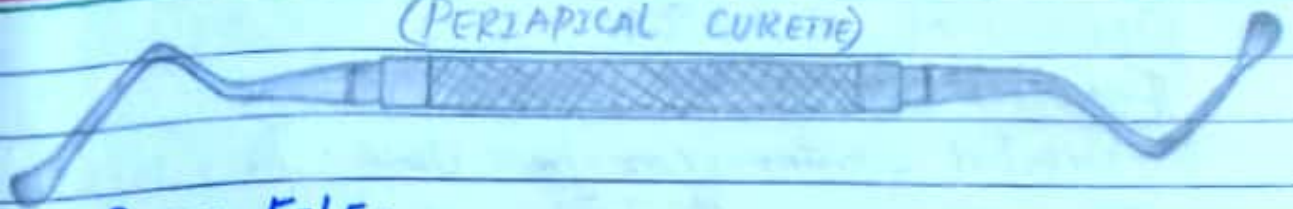
#### \* AREA SPECIFIC CURETTE:

Function: To scale and remove deposits from Specific Subgingival Surfaces.

### Characteristics:

Anterior and posterior Specific Curvette.

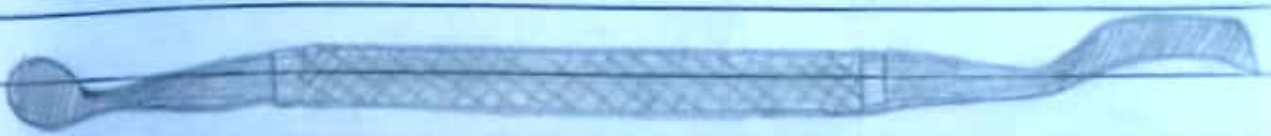
## (PERIAPICAL CURETTE)



## \* BONE FILE ::

FUNCTION :: Finally smooth edges / remove of Alveolar bone of a tooth.

Characteristics :: Double-ended instrument, used in pull-push motion, Straight cut or cross cut cutting ends, variety of sizes and shapes.



## (BONE FILE)

## \* BONE CHISEL AND Mallet ::

FUNCTION :: To split or section of a tooth for easier removal by tapping on chisel with mallet, to reshaped or contour Alveolar bone.

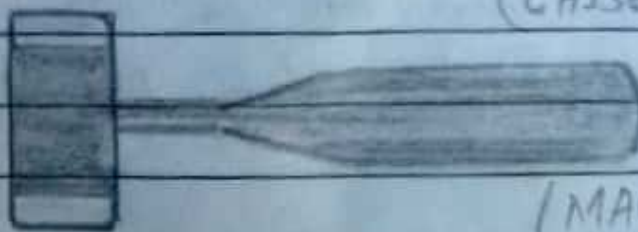
They also used to break down the enamel margin of tooth preparation to form sharp lines & point angle & to place retention grooves.

Characteristics ::

Single chisel level for contouring removing alveolar bone, bibevel chisel for splitting teeth.



## (CHISEL)



## (Mallet)

## \* PERIOSTEAL ELAVATOR::

### FUNCTION::

Periosteal elevator can be used for reflect the soft tissues of tooth.

Three Methods of using this instrument.

- (i) prying motion.
- (ii) push-stroke.
- (iii) pull or Scrap stroke.

### Characteristics::

It can be single or double-ended instrument.



## \* STRAIGHT ELAVATOR::

### FUNCTION::

To loosen tooth from periodontal ligaments before extraction. To separate and lift tooth from the sockets.

### Characteristics::

Single ended, variety of sizes.



## \* ROOT ELAVATOR / CRYERS :- FUNCTION::

To loosen root. They separate and lift from socket. They used for on the posterior teeth.

Characteristics:: Single ended. Can be right & left.



## \* SCALPEL :-

### FUNCTION :-

Scalpel is used to hold blade in place, cut tissue with blade, Trim interproximal restoration.

### Characteristics :-

Blades are disposable after each use. Handle can be autoclaved or disposable.

Scalpel composed of handle & disposable Sterilize Sharpe blades.

⇒ No: 15, 12, 11 mostly commonly used Scalpel blades for intraoral Surgery.

⇒ No: 10 for large skin incision.

⇒ No: 12 for used mucogingival procedures in which incision must be made on posterior aspect of teeth in maxillary tuberosity Area.

⇒ No: 11 Sharp pointed blade used primarily for making small stab incisions such as incising an abscess.

⇒ Dull blades don't make clean, sharp incisions in soft tissues.



Scalpel handle with blades

## \* TISSUE FORCEPS :-

### FUNCTION :-

To hold tissue during Surgical procedures.

### Characteristics :-

It has serrated or rat-tooth tips.

### TYPES :-

\* Stillies forceps :- They are longer forceps usually 7-9 inches and easily grasp tissues in the posterior part of the mouth.

\* Angled forceps :-

Excellent for picking up small fragments of tooth, amalgam or other foreign materials for packing or removal / removing gauze packs.

\* Allis tissue forceps :-

They used for removing large amount of fibrous tissue like epulis fissuratum.

They not used on tissue that is to be left in the mouth.

\* Russian tissue forcep :-

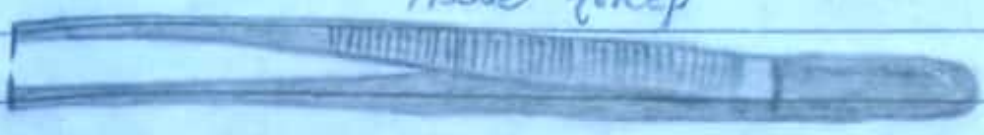
They are large, rounded ended tissue forceps.

They more useful to pick up teeth that have been elevated from their sockets & also used for placing gauze in the mouth.

\* Adson forceps :-

It is delicate forceps with small teeth which can be used gently hold tissues & thereby stabilize it.

Tissue Forcep



\* EXPLORER ::

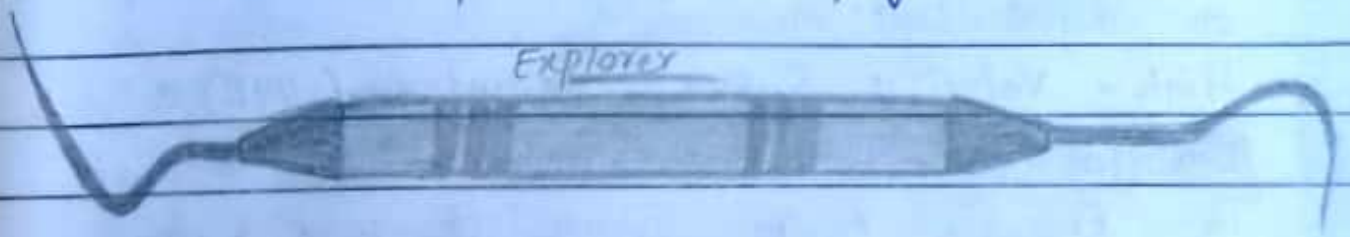
FUNCTION :: To Examine Teeth for decay (Caries) Calculus, Furcation or Canals & other anomalies.

Characteristics :: it is single ended instrument. pointed tips, Sharp, thin and flexible.

Types of Explorer ::

- \* Obin, Shepherds and pigtail.

Explorer

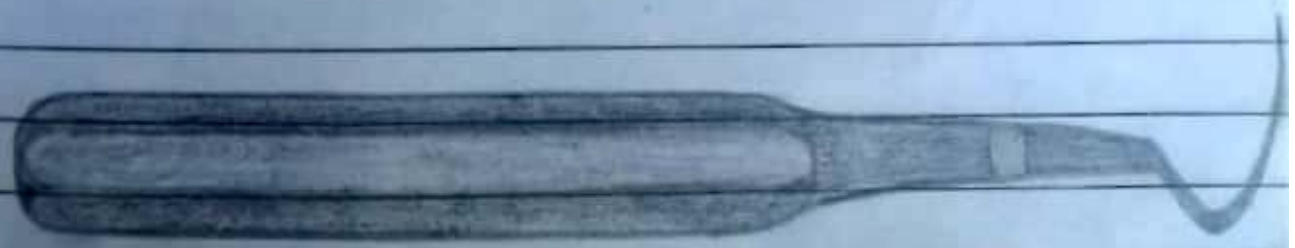


\* ROOT TIP PICK ::

FUNCTION :: To remove or lift small tips in the difficult area of a Mouth / oval cavity.

Characteristics ::

it is pointed at working ends, Straight, right & left pairs of instruments depends on the tooth numbers.



Root tip pick.

## \* SALIVA EJECTOR TIP :

FUNCTION :: To absorb / remove Saliva and maintain dry field using low-volume evacuation and also it is disposable plastic.

### TYPES OF SUCTION TIP ::

#### \* Low-Velocity Saliva Evacuation (LVE) ::

##### Function :-

To evacuate reduces volumes of fluid from the oral cavity.

##### Characteristics ::

Disposable plastic for single use, can be bend or used straight attaches to tubing on dental unit.

#### \* High-Velocity Saliva Evacuation (HVE) ::

##### Function ::

To Evacuate large volume of fluid & debris from the oral cavity.

##### characteristics ::

Straight & slightly angled at one or both ends, stainless steel, autoclavable plastic, or disposable plastic, attaching to tubing on Dental unit.



High velocity Saliva Evacuation (HVE)



Slow velocity Saliva Evacuation (SVE)

## RETRACTORS :-

FUNCTION :- Retractors used to retract the cheeks, tongue and lips to better view the teeth during a dental procedure.

For right angle Austin retractor and offset broad minnesota retractor are most popular retractor.

it can be retract cheeks and mucoperiosteal flap simultaneously.

Tongue or Cheek retractor :-

function :- To hold or retract cheek or Tongue.

characteristics :- Styles and size varying & it is also called Minnesota retractor.

\* Wider tongue retractor :-

They are broad, heart shaped retractor that is serrated on one side.

it care must be taken not to position that it so for posteriorly b/c it will cause gagging.

Minnesota Retractor.



\* HAND PIECE :-

Hand piece also called dental drill and it is used to eliminate decay, prepare a tooth for a crown and to reconstruct the surface of a tooth after the bonding process.

\* High Speed Handpiece:-

Function:- To used with a burrs to cut a cavity or crown preparation.

characteristics:-

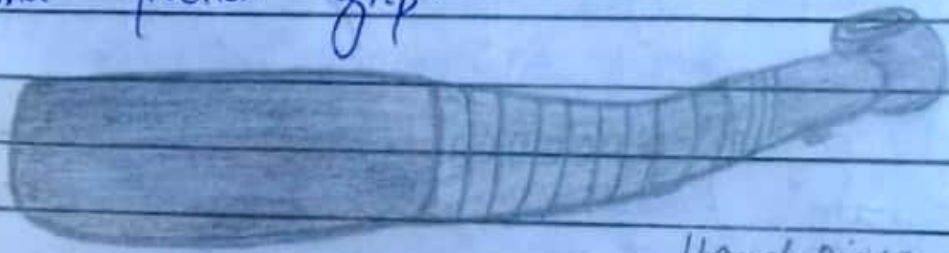
Run on air pressure, upto 40,000 rpm's,  
Spray water and friction grip.

\* Low Speed Handpiece:-

function:- To remove decay, polish, open pulpal access, endo, refine preparation.

characteristics:-

Run on air, upto to 30,000 rpm's, catch end friction grip.



Hand piece

\* MOLT MOUTH PROP :-

It is also called Side Action mouth prop. It is used by the operator to the open the mouth widely. It also used in patients who are deeply sedated.



Molt Mouth  
Prop

### HEMOSTATE :-

**FUNCTION** :: To used for Grasp Tissues or bone fragments. It is also used to remove granulation Tissue from the Socket.

To pick up Small root Tips, pices of Calculus, fragments of amalgam restoration or any other particles that have dropped into the mouth or wound area.

#### characteristics ::

It has long and delicate beaks and has Variety of furcation, working ends is Serrated & it lock. It can be straight or Curved.



Hemostat

### \* NEEDLES HOLDERS :: (DRIVER):

**FUNCTION** :: It is used for intraoral placement of suturs, to grasp and manipulate Sutures needles during Suturaing.

#### Characteristics :-

This instrument with a long and a short, Short and Sout beaks.

It working ends has different lenghts : 6 inches (15 cm) needle holder is recommended. Ends are notched To accomodate needles.



## \* SUTURE NEEDLES :-

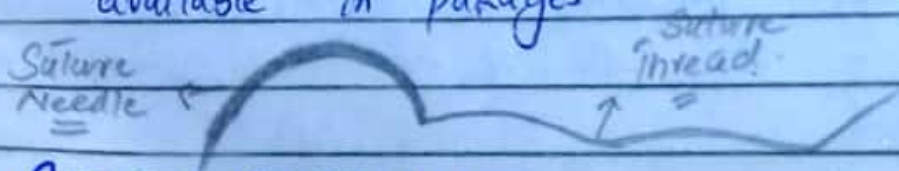
**FUNCTION** :- To suture surgical site. It is used in closing mucosal incisions & usually a small half-circle or three-eighth circles suture needles.

**Characteristics** :-

It is curved to allow the needles to pass through a limited space.

Resorbable Sutures: gut and chromic gut.

Non-resorbable Sutures: Silk, nylon, polypropylen available in packages.



## \* SUTURE SCISSOR :-

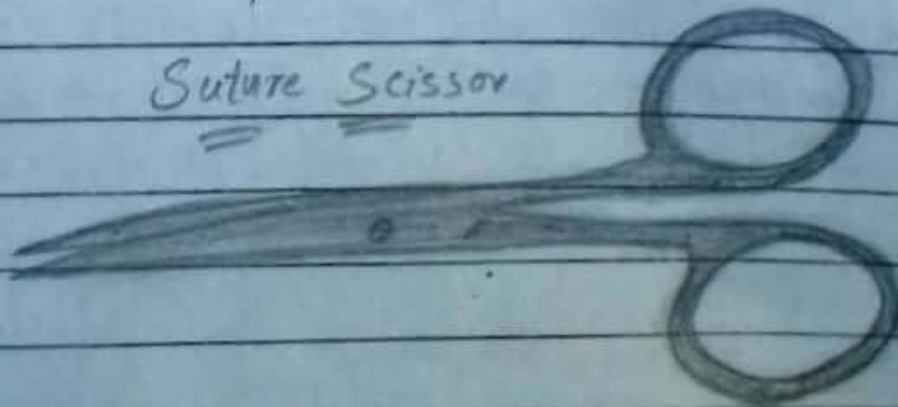
**FUNCTION** :- To cut sutures during procedures.

Most commonly used suture scissor is Dean Scissor, which are slightly curved & serrated blades.

**Characteristics** :- Has straight or angled cutting edges may have a notch ends of cutting edges.

It has relatively long handles and thumb and finger ring. They are held in some way as a needle holder.

Suture Scissor

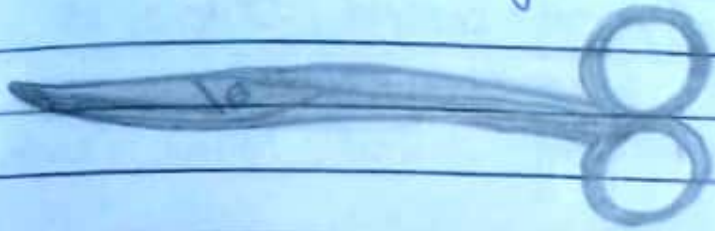




\* TISSUE SCISSOR :: FUNCTION ::

To cut and remove soft tissues and also tissue scissor is used to cut sutures after knots are tied.

Characteristics :: it can be straight or curved. it depend on variety of sizes and shapes.



Tissue Scissor

\* RONGEURS :: (Rongeur forceps) ::

FUNCTION :-

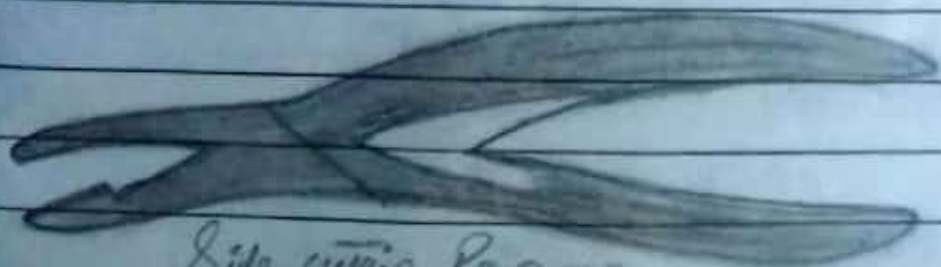
To trim and remove excess alveolar bones after extraction.

Characteristics :: it has leaf spring b/w handles, so that when hand pressure is released, the instrument will open to make repeat cut of bone without reopening the instrument. Variety of sizes and shapes.

TYPES OF RONGEURS FORCEP ::

\* SIDE CUTTING RONGEUR ::

To cut and contour bone. it removes sharp edges of alveolar crest after extraction. it used for better contour of alveolar ridges. removes exostoses.



Side cutting Rongeurs

\* BLUMENTAL RONGEUR ::

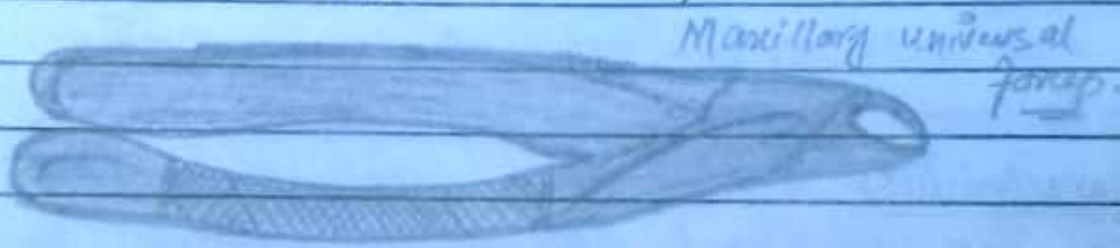
It is more practical for most dentoalveolar surgical procedure that acquired bone removal. It removes large amount of bone efficiently and quickly. It is used quite expensive.

\* EXTRACTION FORCEPS ::\* MAXILLARY UNIVERSAL FORCEPS / CRYERS 150.

function ::

To extract maxillary central, lateral, Cuspids, Premolars and Roots.

characteristics :: Has a Straight handles or one ' Curved Handle .



Maxillary universal forceps.

\* MAXILLARY RIGHT FORCEP / NO: 88R.

function ::

To extract toifurcation maxillary right first and Secnds molars.

characteristics :: Has right Split beak to engage lingual roots.



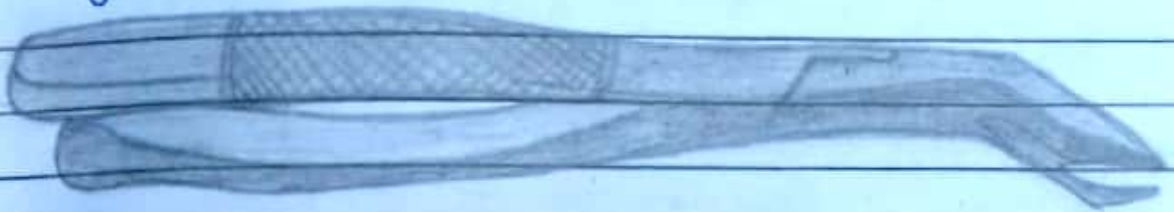
Maxillary right forcep.  
No # 88R.

\* MAXILLARY LEFT FORCEPS / NO: 88 L:

Function::

To extract trifurcation maxillary left First and 2nd Molars.

Characteristics:: Has left split beak to engage lingual roots.

\* MANDIBULAR UNIVERSAL FORCEPS / NO: 23:

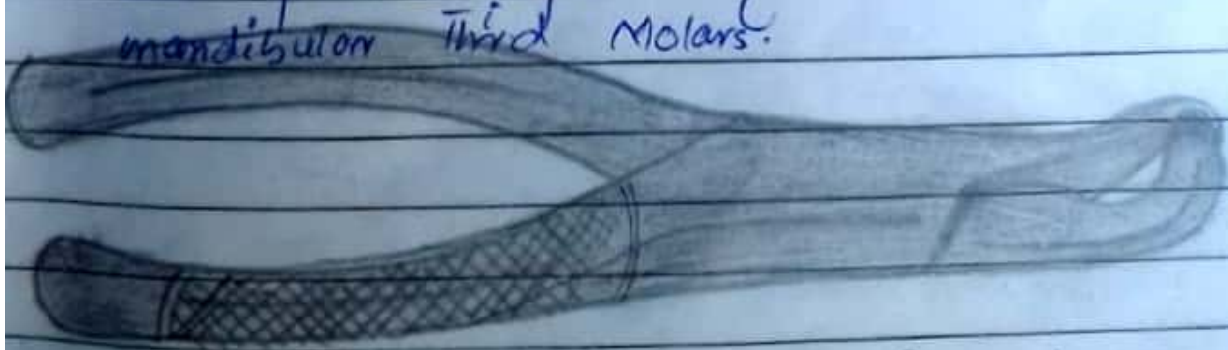
Function::

To extract mandibular first and second molars.

Characteristics:: Referred to as "cowhorn" forceps, straight handles or one curved handle.

\* MANDIBULAR THIRD MOLAR FORCEPS / NO: 222:

Similarly in design to NO: 17 forceps but their beaks are shorter and do not have pointed tips useful in the erupted mandibular third molars.



Mandibular Third Molar Forceps.

NO # 122