

# GPAT - 2020

## TOTAL BITS

125 Bits

## TOTAL MARKS

500 Marks (125B × 4M)

## TIME

3 Hours

## NEGATIVE MARK

1 Mark

## QUALIFYING MARKS

### OC

$163/500 \times 100$

~33%

~2000

### EWS

$104/500 \times 100$

~21%

~500

### OBC

$131/500 \times 100$

~26%

~1300

### SC

$103/500 \times 100$

~21%

~700

### ST

$76/500 \times 100$

~15%

~300

## GOVT. JOBS

- i. RESEARCH OFFICER
- ii. DI/DCO/ACD
- iii. JSO
- iv. JA
- v. PROF./LECT
- vi. PHARMACIST (CGHS, ESIC, AIIMS, RAILWAYS, COAL INDIA ETC.,)

## PHARMACEUTICS

~36 – 40 Bits

~32%

# BIOLOGICAL PRODUCTS



# SURGICAL SUTURES AND LIGATURES

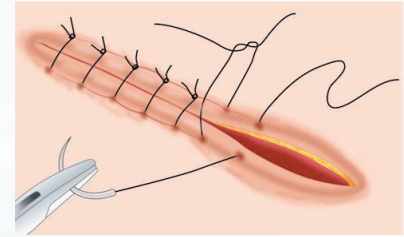
**PRESENTED BY:**  
**VENKATARAO MANNEM**  
**PHARMACY OFFICER,**  
**JHARKHAND STATE.**

# DEFINITIONS

Surgical sutures & ligatures are the strings ( threads) specially prepared & sterilized for use in surgery

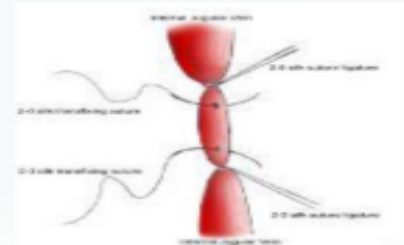
## ✓ **SURGICAL SUTURE**

It is a sterile string used to tie the tissues together (Skin, Muscle, Tendons etc.,)



## ✓ **SURGICAL LIGATURE**

It is a sterile string used to tie the blood vessels (Arteries & Veins)



# CLASSIFICATION OF SURGICAL SUTURES AND LIGATURES



## ABSORBABLE SUTURES & LIGATURES

Strings digested in the tissue of body after wound has healed

**EXAMPLE:** CATGUT  
KANGAROO TENDON  
BROCAFIL



## NON - ABSORBABLE SUTURES & LIGATURES

Strings not digested in the tissue of body after wound has healed

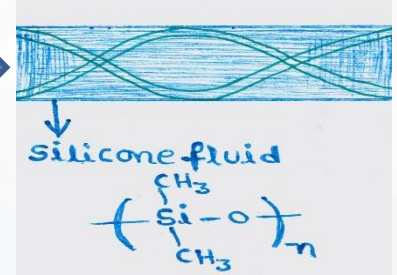
**EXAMPLE:** SILK  
LINEN  
COTTON  
NYLON (Polyamide)  
METALS (Ag) & ALLOY (Stainless Steel)

# NON - ABSORBABLE SUTURES & LIGATURES

## Monofilament

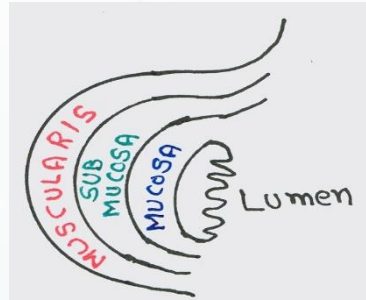


## Braided



# CATGUT

1. **SYNONYMS** – Kit gut/Violin gut/Surgical gut/collagen fibre
2. **SOURCE** – Submucosal layer of small intestine of healthy Sheep or Goat



### 3. CONTAMINANTS –

(Spore forming Gram Positive)

**AEROBIC**

**EXAMPLES :**

Bacillus species

**ANAEROBIC**

**EXAMPLES:**

Clostridium species

#### 4. PREVENTION OF CONTAMINATION

Catguts are generally sterilized by

A) Heat process ( $160^{\circ}$  for at least 1 hour – Sporicidal)

**Disadv.** – Heat treated strings are too stiff

B) Chemical process

Chemicals used for sterilization must be Sporicidal (e.g., Ethylene Oxide)

**Adv.**

Strings are flexible

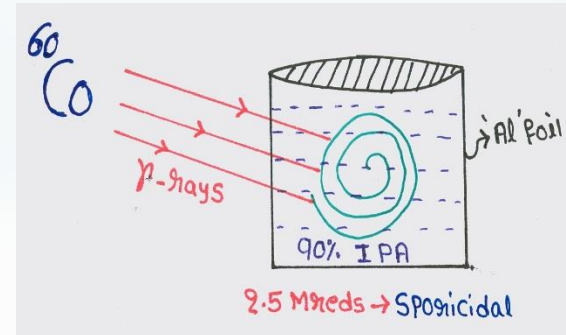
**Disadv.**

Flammable

Reduced by addition of CO<sub>2</sub>/ Freon

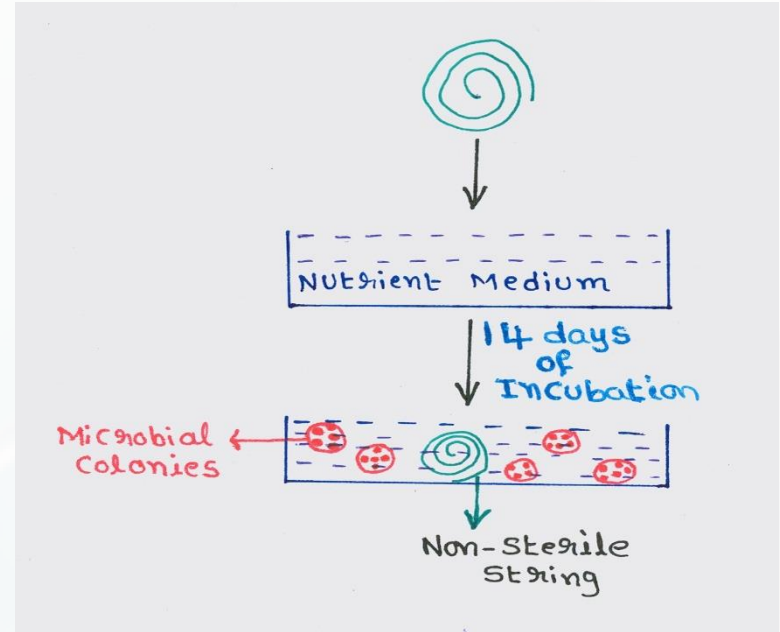
C) Irradiation process/ Cold Sterilization

**Adv.** – Irradiated strings are more flexible



## 5. DETECTION OF CONTAMINANTS

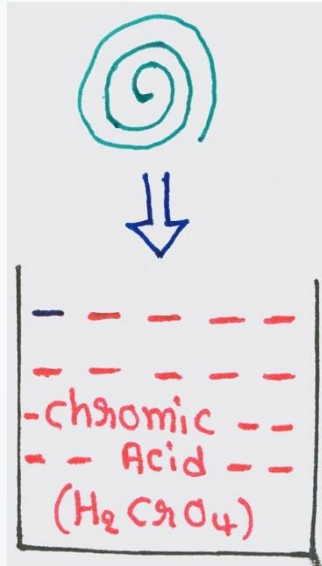
- ✓ The strings are placed in suitable Nutrient media, after an incubation period of 14 days any growth of micro organisms are found then the strings are treated as Non-sterile.





## 6. HARDENING OR TANNING OF CATGUT

- ✓ Strings can be hardened/Tanned to delay the absorption time by soaking in a solution of Chromic Acid ( $H_2CrO_4$ ).



## PREVIOUS QUESTIONS:

### GPAT – 2020, AP DI 2010

1. Violin gut is prepared from the intestine of :
- Horse
  - Cat
  - Camel
  - Sheep**

### DCO – 2019, GATE 1993, AP DI 2008

2. The sterility test intended for surgicals require an incubation period of :
- 7 days
  - 14 days**
  - 21 days
  - 28 days

### KNT DI – 2018, AP DI 2010

3. Hardening is one of the step in the preparation of catgut it can be done by soaking string in the solution of
- $\text{KMnO}_4$
  - $\text{K}_2\text{SO}_4$
  - $\text{VoSO}_4$
  - $\text{H}_2\text{CrO}_4$**



THANK YOU



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