

# DEPTH OF BIOLOGY - Level up your studies with DOB

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## UNIT-II

10hours

### 1. Pharmacology of drugs acting on cardio vascular system

- a. Drug used in the therapy of shock.
- b. Hematinics, coagulants and anticoagulants.
- c. Fibrinolytics and anti-platelet drugs
- d. Plasma volume expanders

### 2. Pharmacology of drugs acting on urinary system

- a. Diuretics
- b. Anti-diuretics.

Medichem

## UNIT- III

10 Hours

**Anti-arrhythmic Drugs:** Quinidine sulphate, Procainamide hydrochloride, Disopyramide phosphate\*, Phenytoin sodium, Lidocaine hydrochloride, Tocainide hydrochloride, Mexiletine hydrochloride, Lorcinide hydrochloride, Amiodarone, Sotalol.

**Anti-hyperlipidemic agents:** Clofibrate, Lovastatin, Cholesteramine and Cholestipol

**Coagulant & Anticoagulants:** Menadione, Acetomenadione, Warfarin\*, Anisindione, clopidogrel

**Drugs used in Congestive Heart Failure:** Digoxin, Digitoxin, Nesiritide, Bosentan, Tezosentan.

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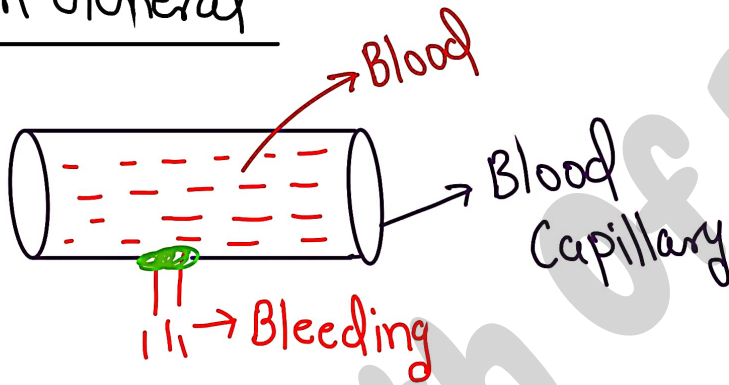
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3.

## COAGULANTS & ANTI- COAGULANTS

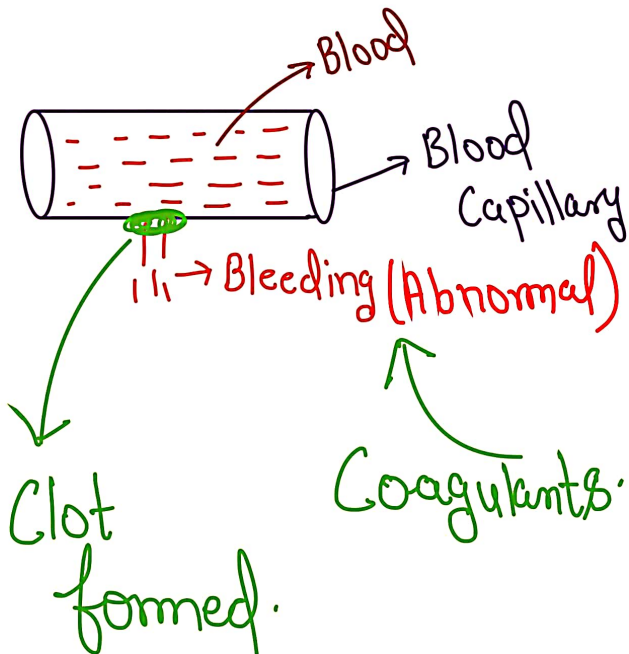
Coagulants  $\Rightarrow$  Those Agents who promote Clotting.  
 $\hookrightarrow$  Haemostatics.

In General



It forms Clot within  
70 - 120 seconds -

Abnormal  
Condition



Types of Coagulants.

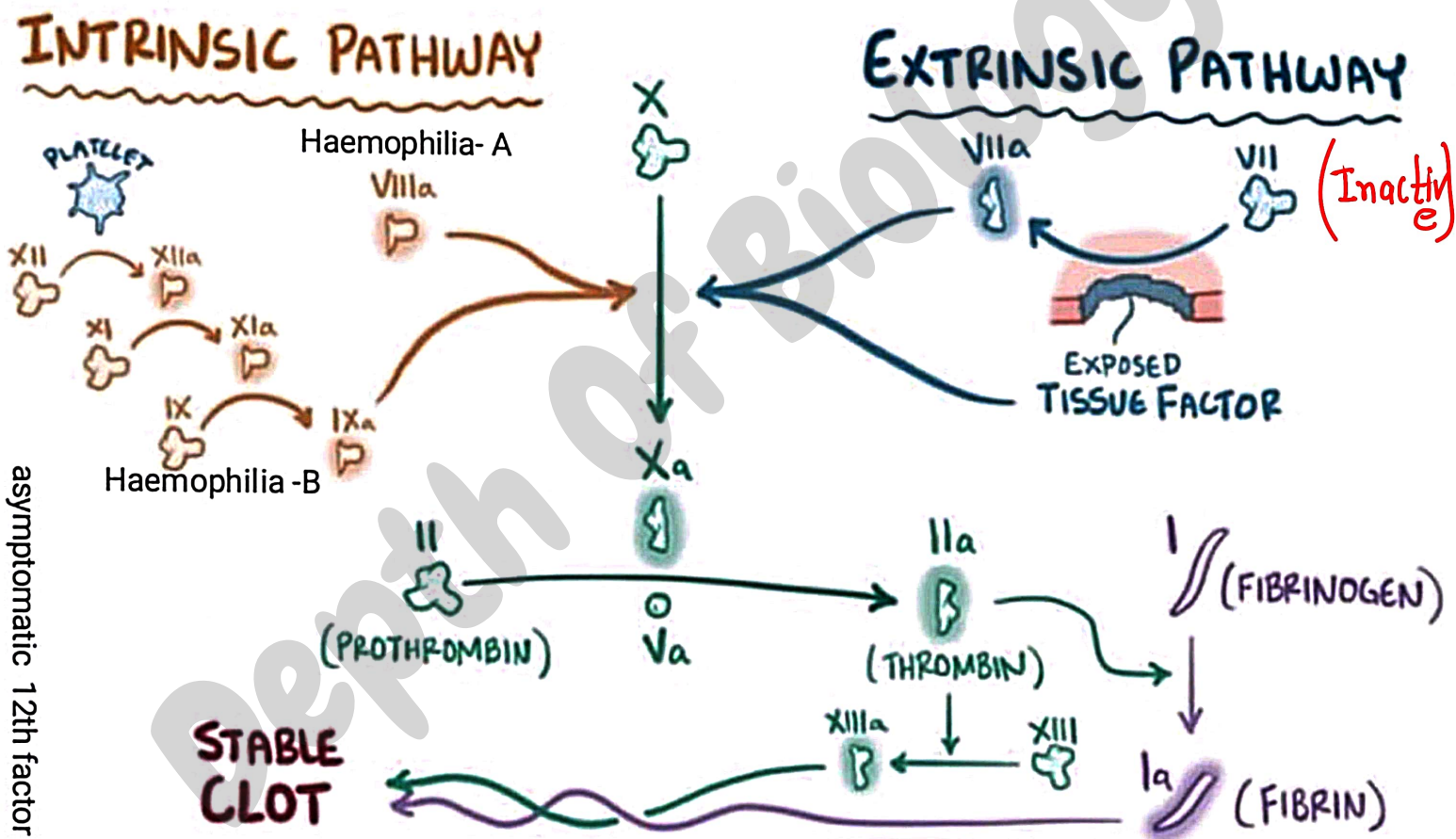
Local

Systematic

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## Blood Coagulation



asymptomatic 12th factor

7 → 10 → 2 → 1 → 13a

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① Local Coagulants.  $\Rightarrow$  Drugs which stop the bleeding in Local area.

eg  $\rightarrow$  Thrombin  $\rightarrow$  Powder is clusted Over Bleeding Surface

② Systemically  $\Rightarrow$  They are administered via Oral & Parental route & reaches into Systemic Circulation.

eg  $\Rightarrow$  Vitamin K  $\rightarrow$  Fat Soluble Vitamin.

Essential for Biosynthesis of Clotting Factor.

★ Vitamin K (factor)

- $\rightarrow$  K<sub>1</sub>  $\Rightarrow$  Present in food
- $\rightarrow$  K<sub>2</sub>  $\Rightarrow$  Produce in Gut by Good Bacteria.
- $\rightarrow$  K<sub>3</sub>  $\Rightarrow$  Synthetic Compound Used Therapeutically.

$\downarrow$   
Used in the Case of Overdose of Anti-Coagulants drugs.



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Action of Vitamin K  $\Rightarrow$

a) Biosynthesis of Clotting Factor  $\rightarrow$  Prothrombin & Factor  
VII, IX, X  
 from Liver.

Use of Vitamin-K  $\Rightarrow$  In Case when bleeding is continue  
 In Case of Vitamin K deficiency.  $\rightarrow$  Clotting time more then Normal.  
 $\rightarrow$  Overdose of Anticoagulant.  
 $\rightarrow$  In New Born Babies. (Vitamin K  $\downarrow$ )

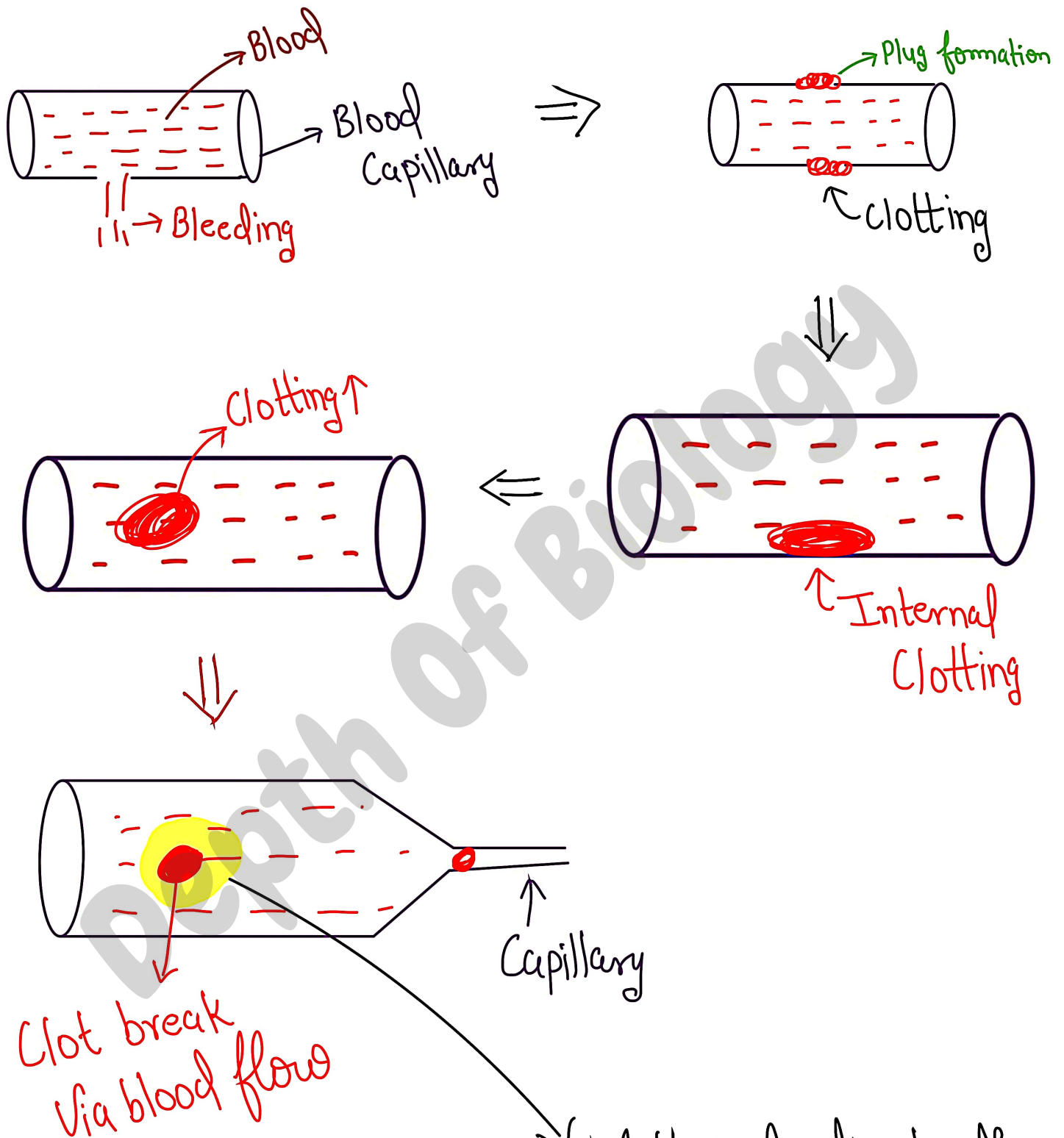
(ii) Fibrinogen  $\rightarrow$  Obtain from Human plasma.  
 Use In Case of Haemophilia.

Anti-Coagulants. (Dissolve Clot)  
 $\uparrow$  Opp./ Inhibit  $\uparrow$  Clotting.

★ Those Agents which are Used to Inhibit Clotting.

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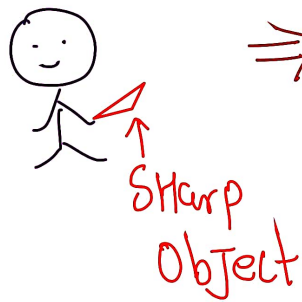
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We Have to dissolve this Clot with the Help of AntiCoagulants.

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⇒ When a Host are Come in Contact with SHarp Object. It may Lead to Cut.

↓  
Blood Vessle rupture & blood start to Release

↓  
Now, Coagulants Act on that particular Site & forms a Clot.

↓  
This, Clot formation prevent the further Blood Loss.

↓  
But, Sometime due to known & unknown Reason blood Clot is retained in blood Vessle.

↓  
And due to High blood flow. This Clot is Break & Stucked into Capillaries.

↓  
Lead to Reduce in blood flow ( Ischemia , Hypoxia Condition devloped)

↓  
So, we prescribed Anticoagulants to dissolve this Types of Clots.  
[Like Warfarin].

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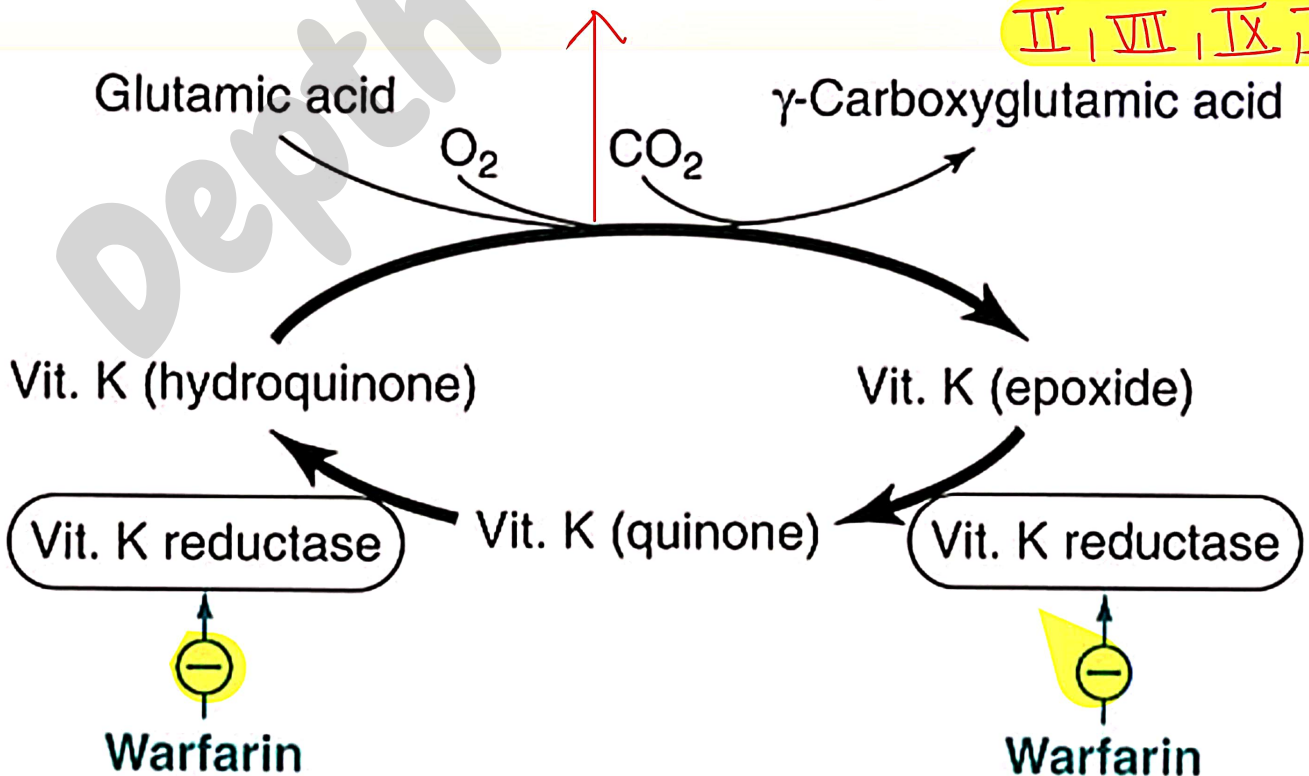
Mechanism of Action

- ⇒
- ① By decrease the Action of Coagulation Factor.
  - ② They Interfere the Synthesis of Coagulation Factor.

Vitamin K Inhibitor → Warfarin (Orally).

Mechanism of Action

In this step synthesis of factor  $\downarrow$   
II, VII, IX, X.





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