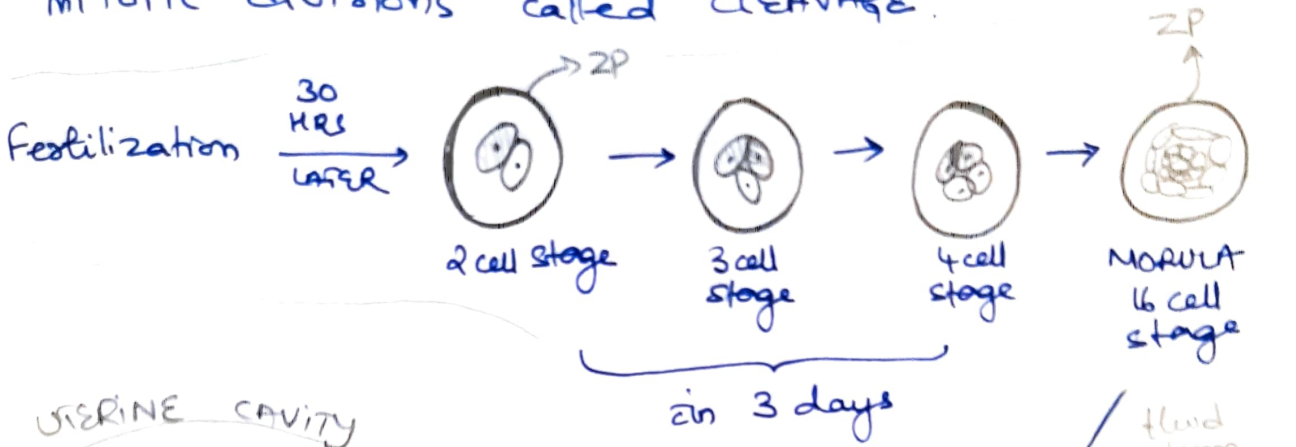
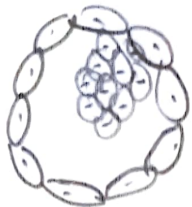


# IMPLANTATION

Fertilized Ovum / Zygote undergoes repeated MITOTIC divisions called CLEAVAGE.

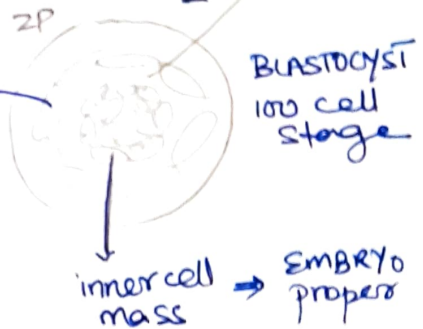


UTERINE CAVITY



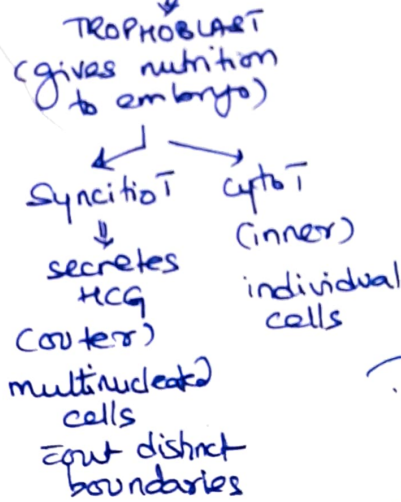
in 3-4 days

in uterine cavity, Blastocyst floats for sometime, loses ZP ✓  
Trophoblast layer gets exposed



BLASTOCYST 100 cell stage

fluid from ut cavity

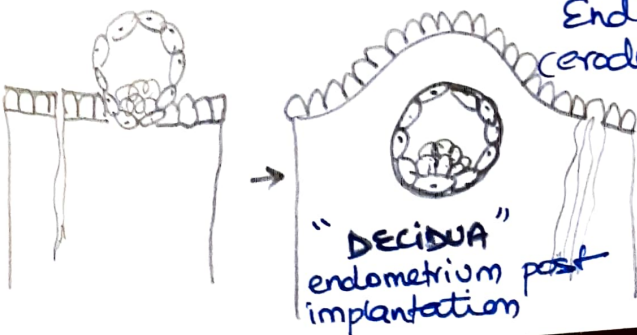


IMPLANTATION starts on 6th Day after fertilization. Completed by 11th DAY

Trophoblasts have high sticking property, comes in contact & hormonally prepared endometrium of UTERUS

Syncytiotrophoblast secretes proteolytic enzymes = digest / liquefy Endometrial cells (erodes endometrium)

Blastocyst erodes & burrows deep into endometrium (whole of it lies in endometrium)



ENDOMETRIAL INTERSTITIAL IMPLANTATION

Site = Post dorsal wall of UTERUS (UPPER PART) near fundus

## \* Decidual Reaction:

The endometrium after implantation is called DECIDUA.

Stromal cells of endometrium get <sup>①</sup> enlarged, <sup>②</sup> become vacuolated & <sup>③</sup> filled =  $\left\{ \begin{array}{l} \text{GLYCOGEN} \\ \text{LIPIDS} \end{array} \right\}$

These cells are called DECIDUAL CELLS

& changes occurring in them are called Decidual Reaction.

source of nutrition till placenta is formed

## \* PLACENTA:

- temporary organ formed during PREGNANCY (membranous & vascular)

- physiological & physical link b/w mother & fetus

### FORMATION:

Placenta is implanted in the wall of the uterus.

The part of the endometrium / decidual part from which the placenta develops is called

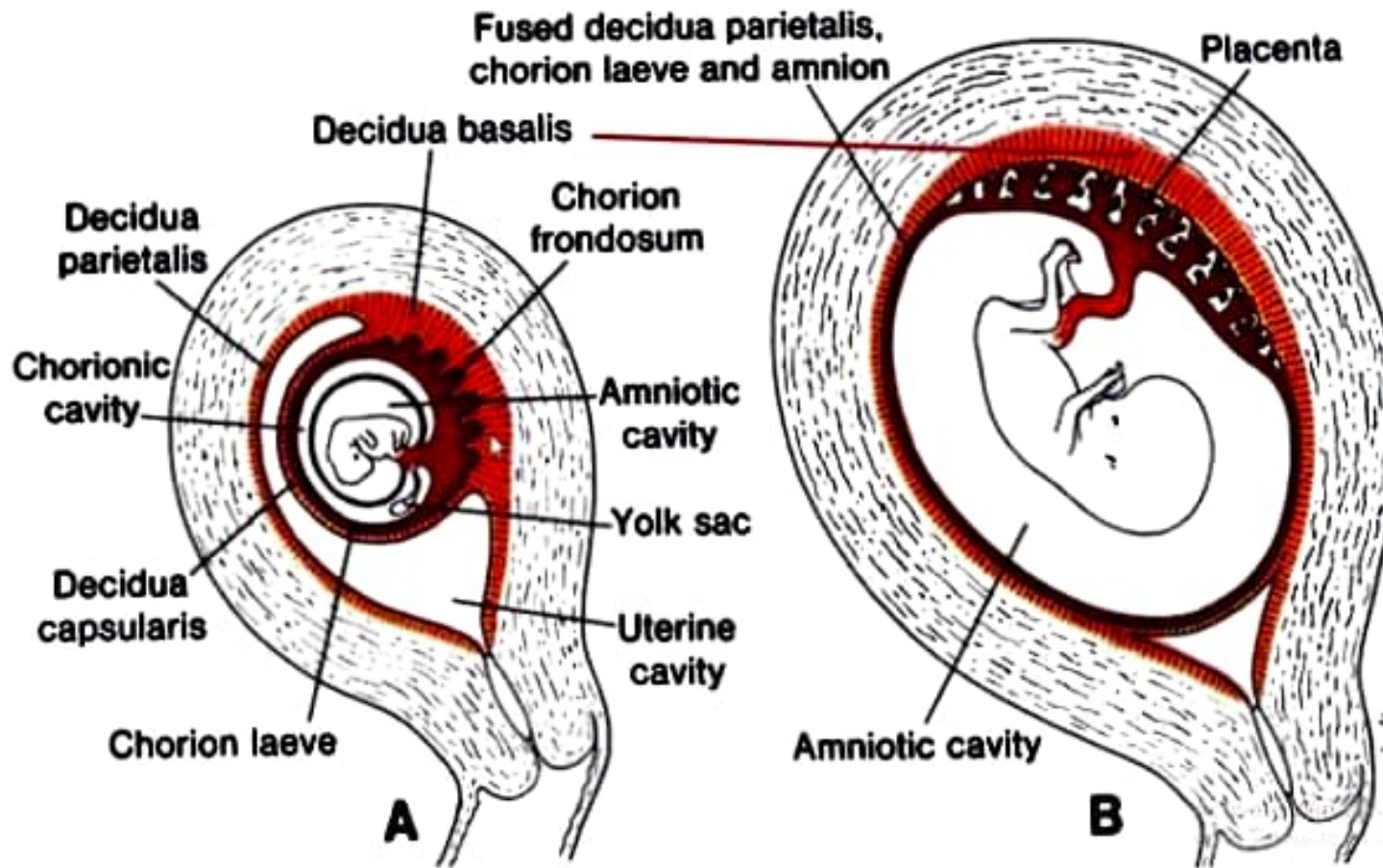
\* DECIDUA BASALIS / DECIDUAL PLATE.

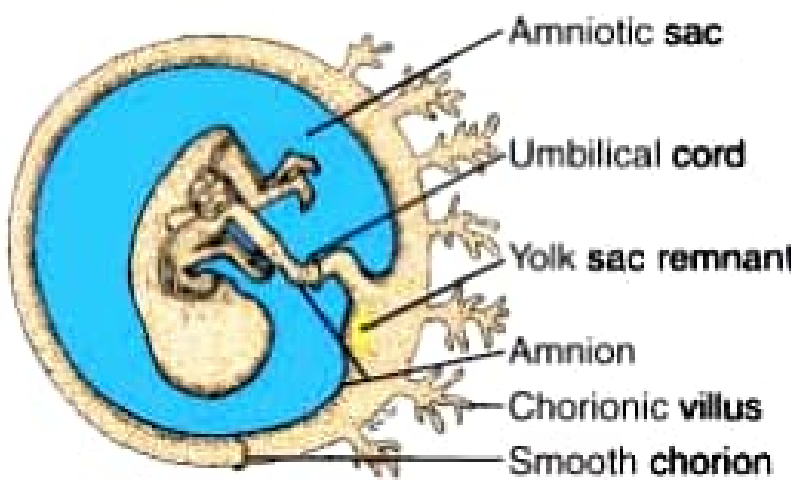
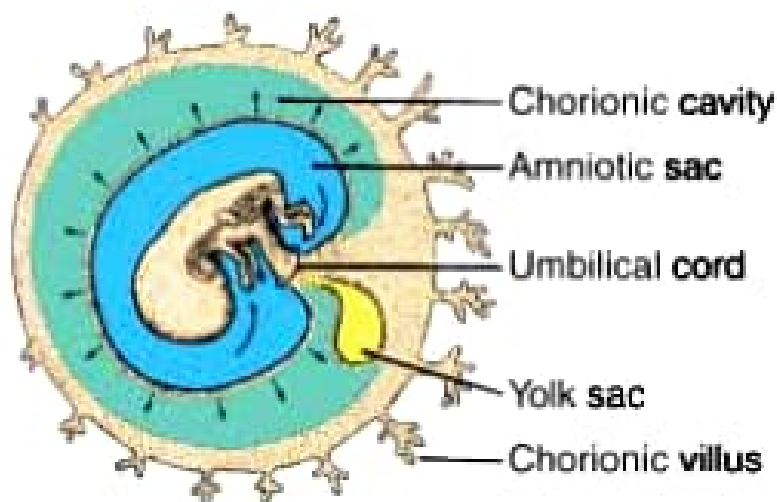
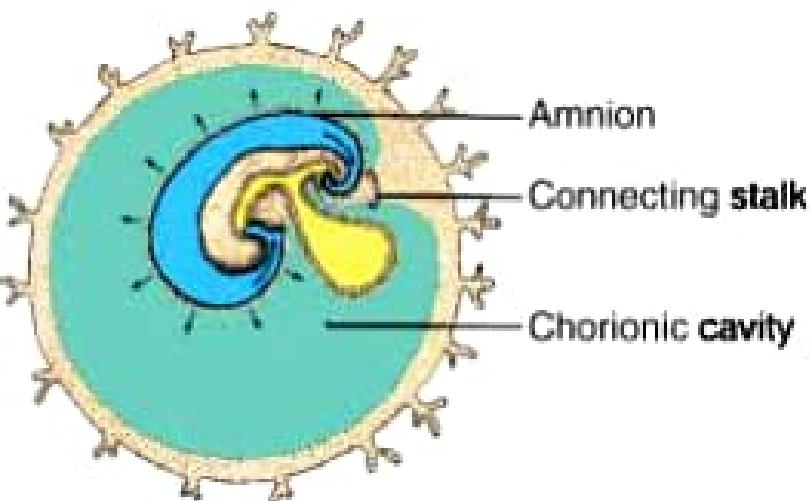
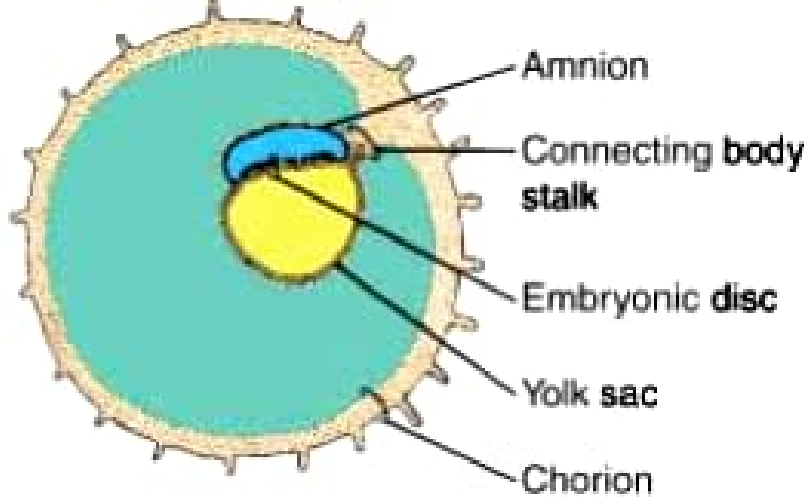
The part of the decidua = separates the embryo / fetus from uterine cavity is called

\* DECIDUA CAPSULARIS.

\* The part of the decidua lining the rest of uterine cavity = DECIDUA PARIETALIS

'Refer picture below'





- In the region of Decidua Basalis - Maternal BV proliferate & grow
- The Syncytiotrophoblast sends cords into the Decidua Basalis.

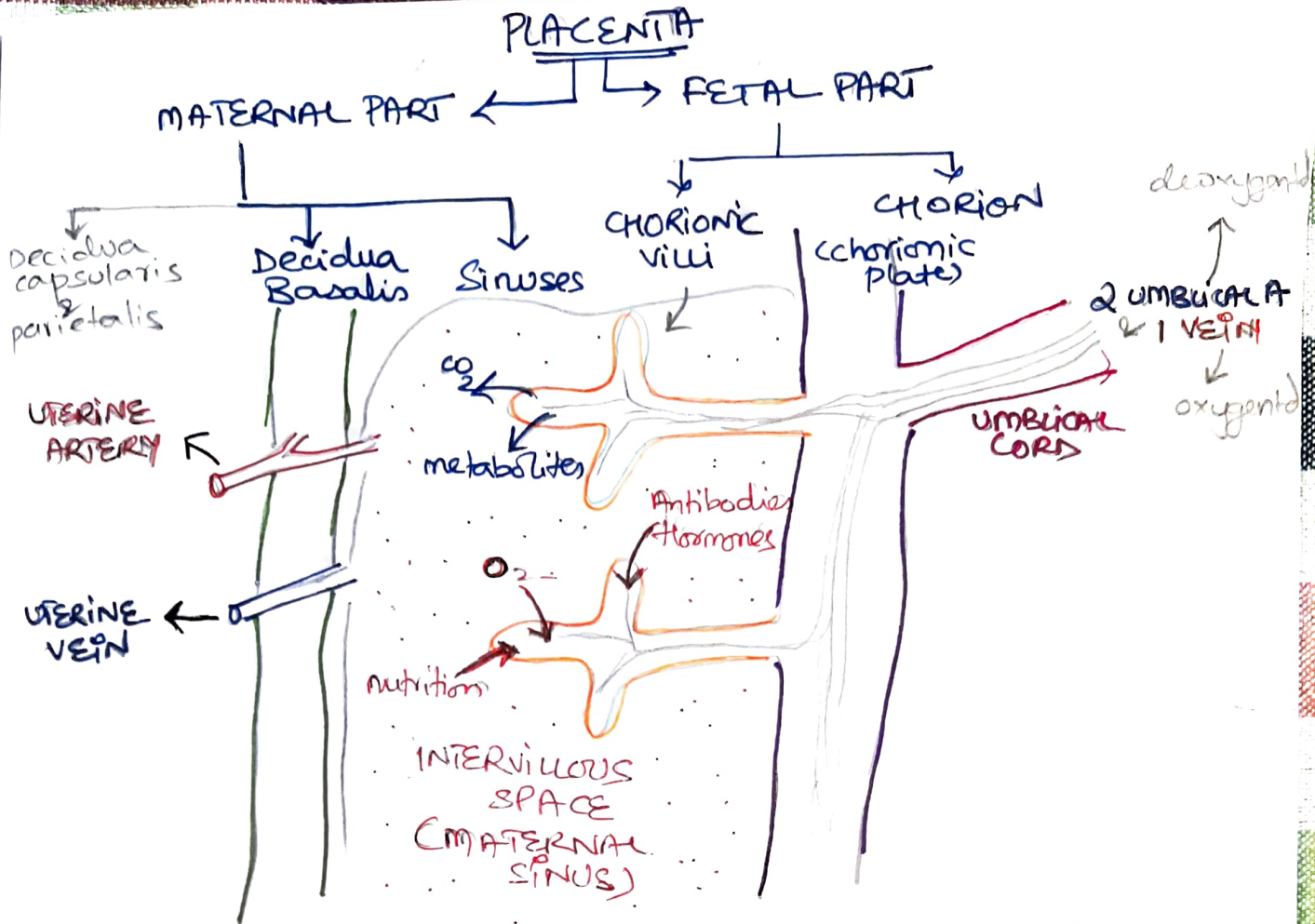
These cords further grow & send more projections to form PLACENTAL villi / CHORIONIC villi in the Placental / chorionic Villi - blood capillaries from the vascular system of the Embryo grow. These capillaries are covered by thin endothelial cells, surrounded by mesenchymal tissue.

- The chorionic villi which project into the Decidua basalis, are surrounded by Blood filled maternal sinuses called INTERVILLOUS SPACES.

~ Maternal blood flows through UTERINE ARTERIES into the maternal sinuses / intervillous space & back through UTERINE VEINS of the mother

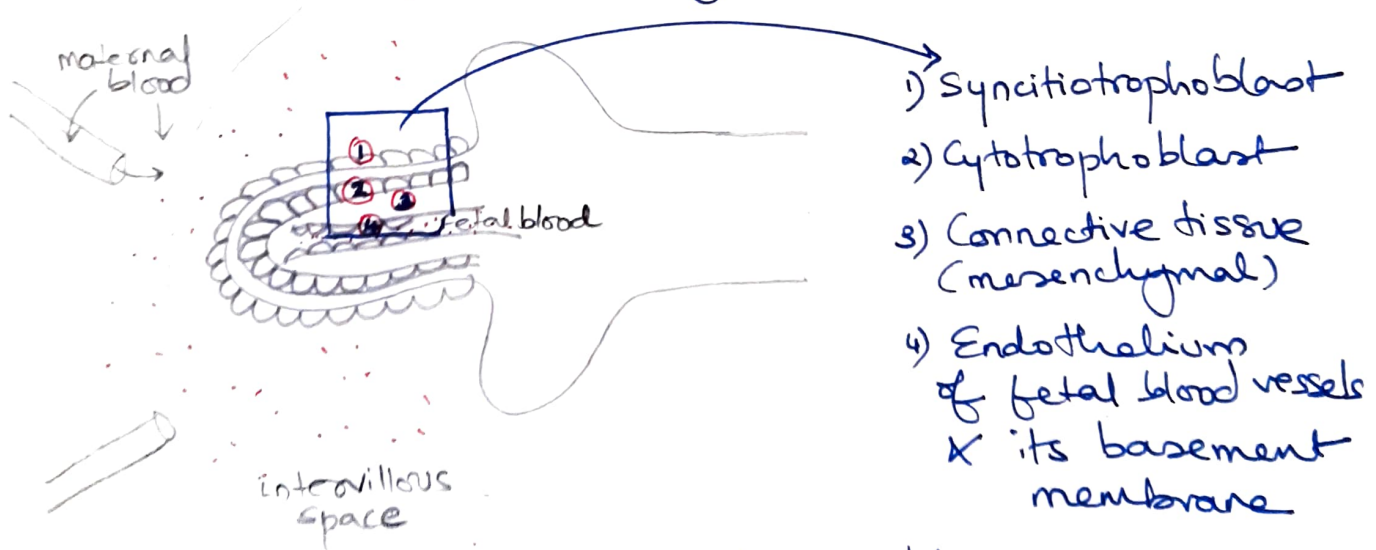
~ Fetal blood flows through 2 umbilical arteries into the capillaries in chorionic Villi & flows back through 1 umbilical VEIN

Fetus is connected to Placenta via umbilical cord (2 umb. A & 1 umb vein)



\* Maternal & fetal Blood do not mix with each other.

They are separated by PLACENTAL MEMBRANE & is made up of the layers of walls of Villi



DECIDUA BASALIS

\* All interchanges b/w fetal & maternal blood occur through placental membrane barriers

✓ Total area of membrane  $4\text{ m}^2$  to  $14\text{ m}^2$

✓ Thickness -  $0.025\text{ mm}$  →  $0.002\text{ mm}$

(Cytotrophoblastic layer disappears later ×

connective tissue

← thinning occurs)

makes placenta more effective

✓ Placenta - disc shaped  
15 - 20 cm diameter  
500 gm weight

✓ Fully developed by 12 wks gestation

✓ After birth, placenta is shed along with decidua.

## \* FUNCTIONS -

1) Transport of substances b/w mother & fetus - exchange of gases - FETAL LUNG  
across placental membrane - nutrients - drugs - FETAL GUT  
- antibodies  
- waste products of metabolism - FETAL EXCRETORY ORGAN

2) Protection of fetus

3) Endocrine function - Hormone secretion

a) HCG (gonadotropin)

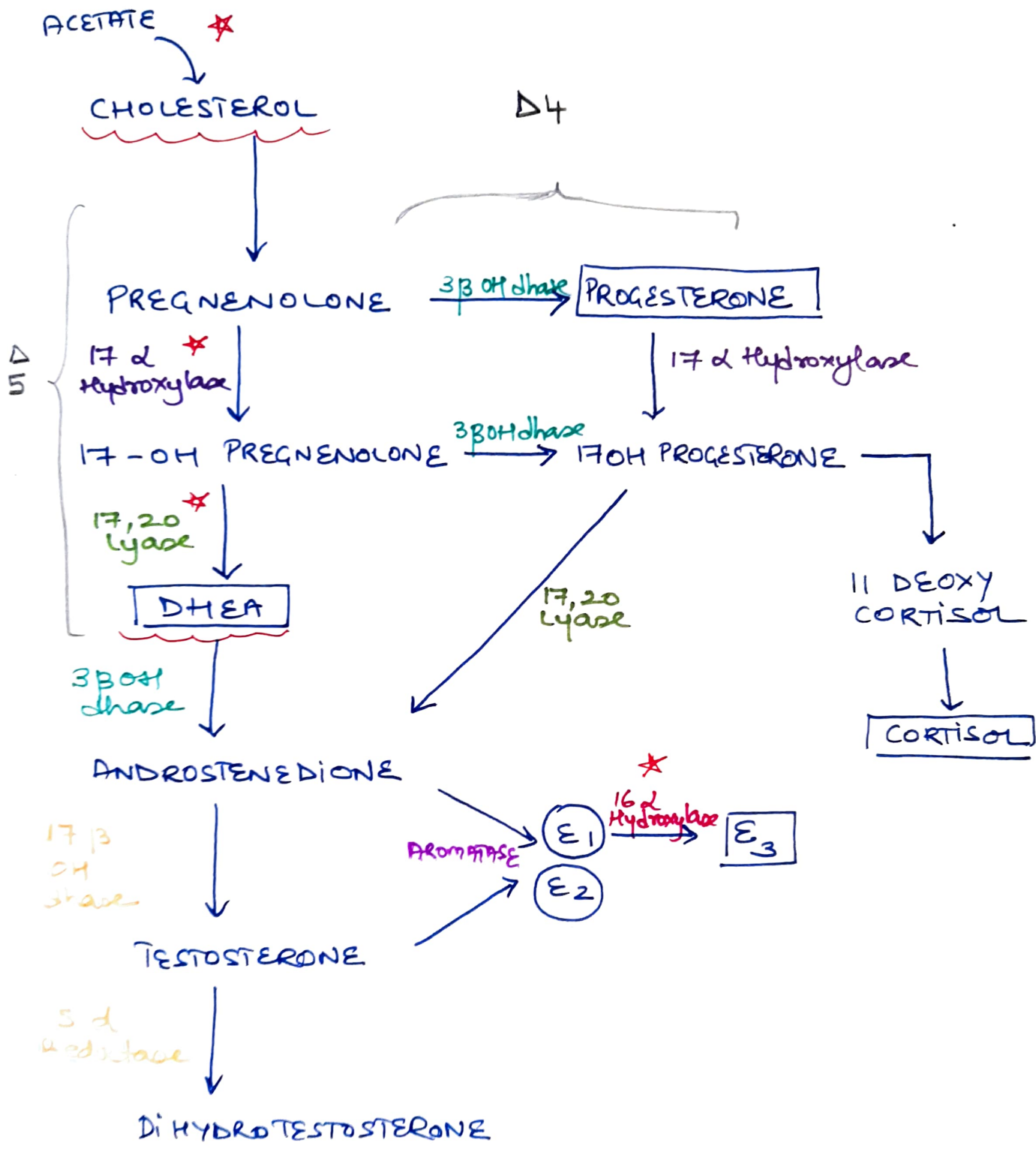
b) HCS (Somatomammotrophins)

c) HCT (thyrotropin)

d) Placental Estrogen & Progesterone

e) Relaxin

# Biosynthesis of Sex Steroids -



# FETOPLACENTAL UNIT:

The fetus, placenta & mother are interdependent for hormone production (E, P & fetal synthesis of cortisol)

The FPU is a functional unit → Feto-placental maternal unit

