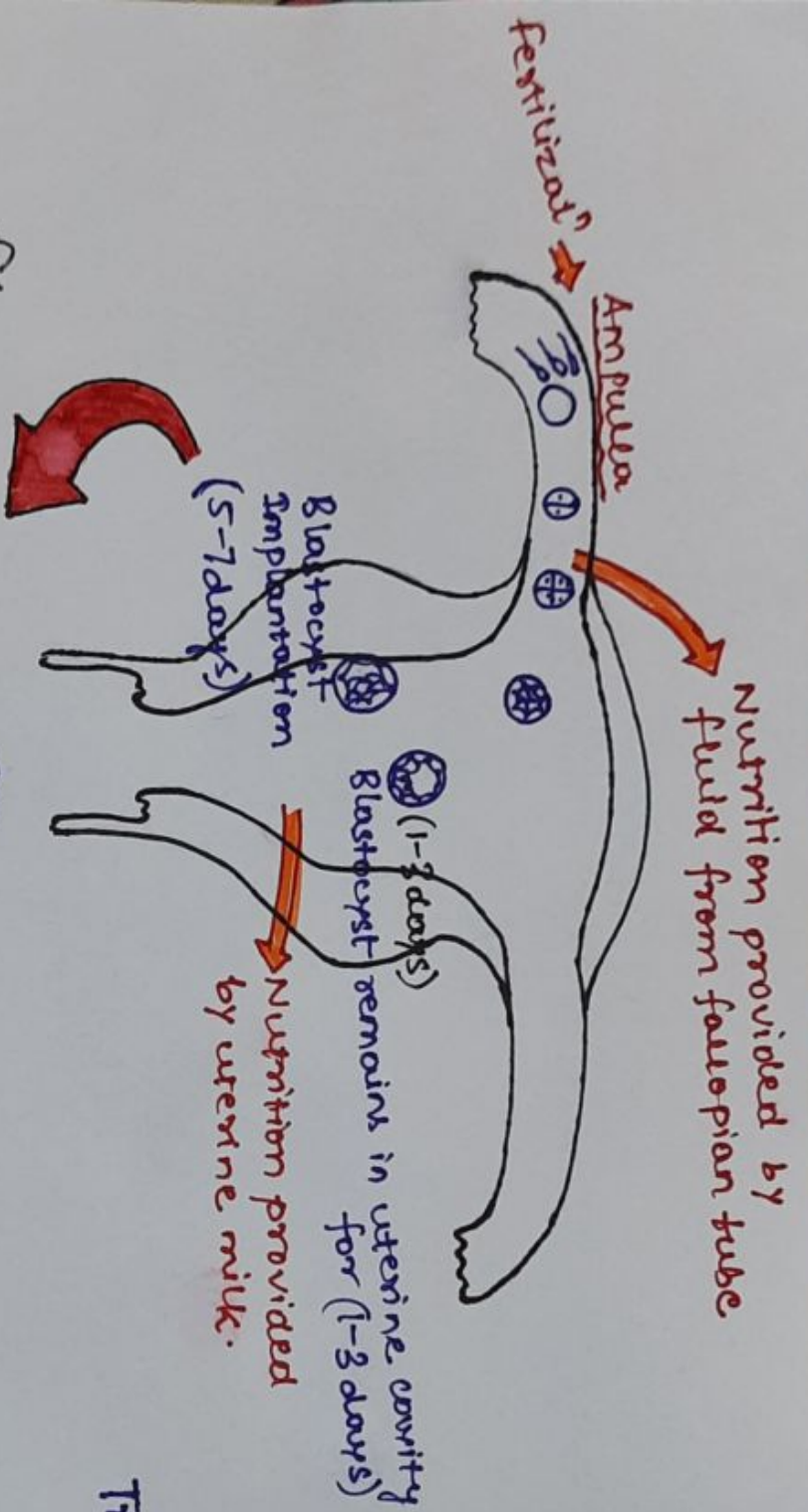




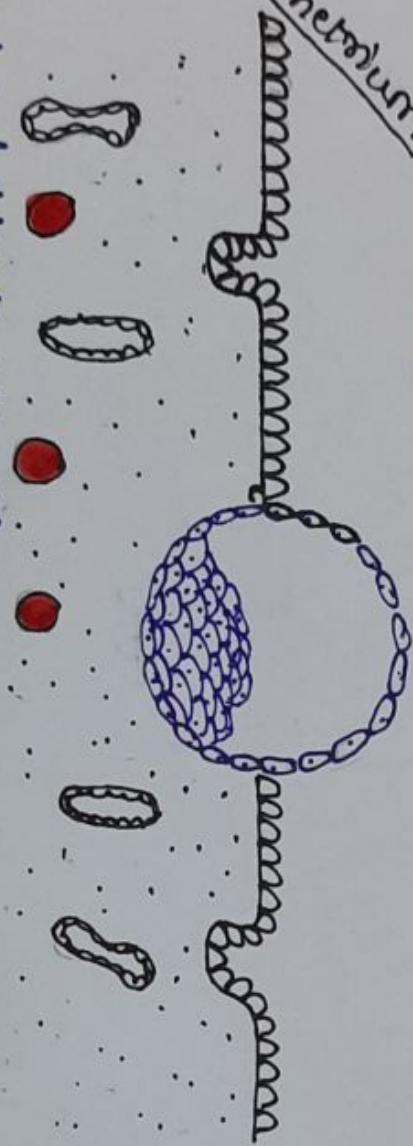
Nutrition provided by fluid from fallopian tube

Blastocyst (1-3 days) remains in uterine cavity for (1-3 days)

Nutrition provided by uterine milk.

Blastocyst Implantation (5-7 days)

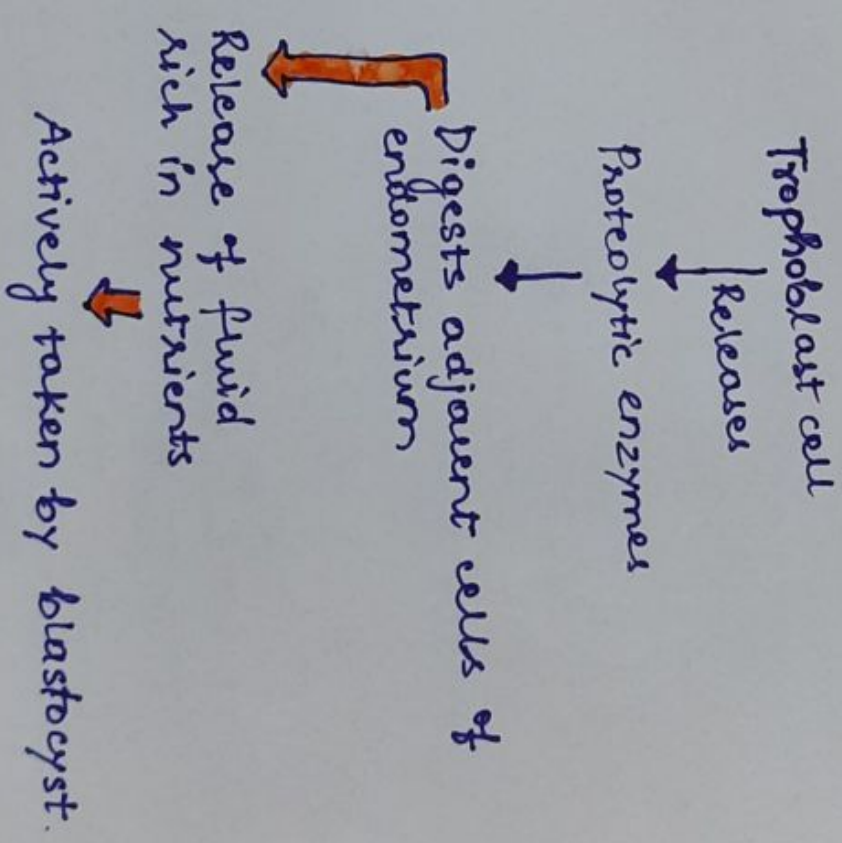
Endometrium



Some trophoblast cells
Some inner cell mass cells
Some uterine endometrial cells

Rapidly Proliferation

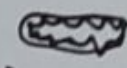
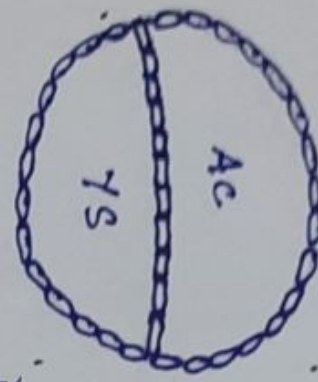
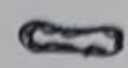
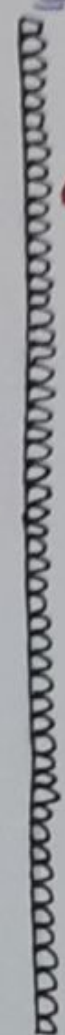
Placenta formation.



Sustained
Corpus
Luteum



⇒ Progesterone
⇕



- thickens ↑
- glycogen ↑
- proteins ↑
- lipids ↑

These changes in uterine
Endometrium is presence
of progesterone is k/a



"Decidual Reaction"

stromal
cells

New known as



Decidual cells

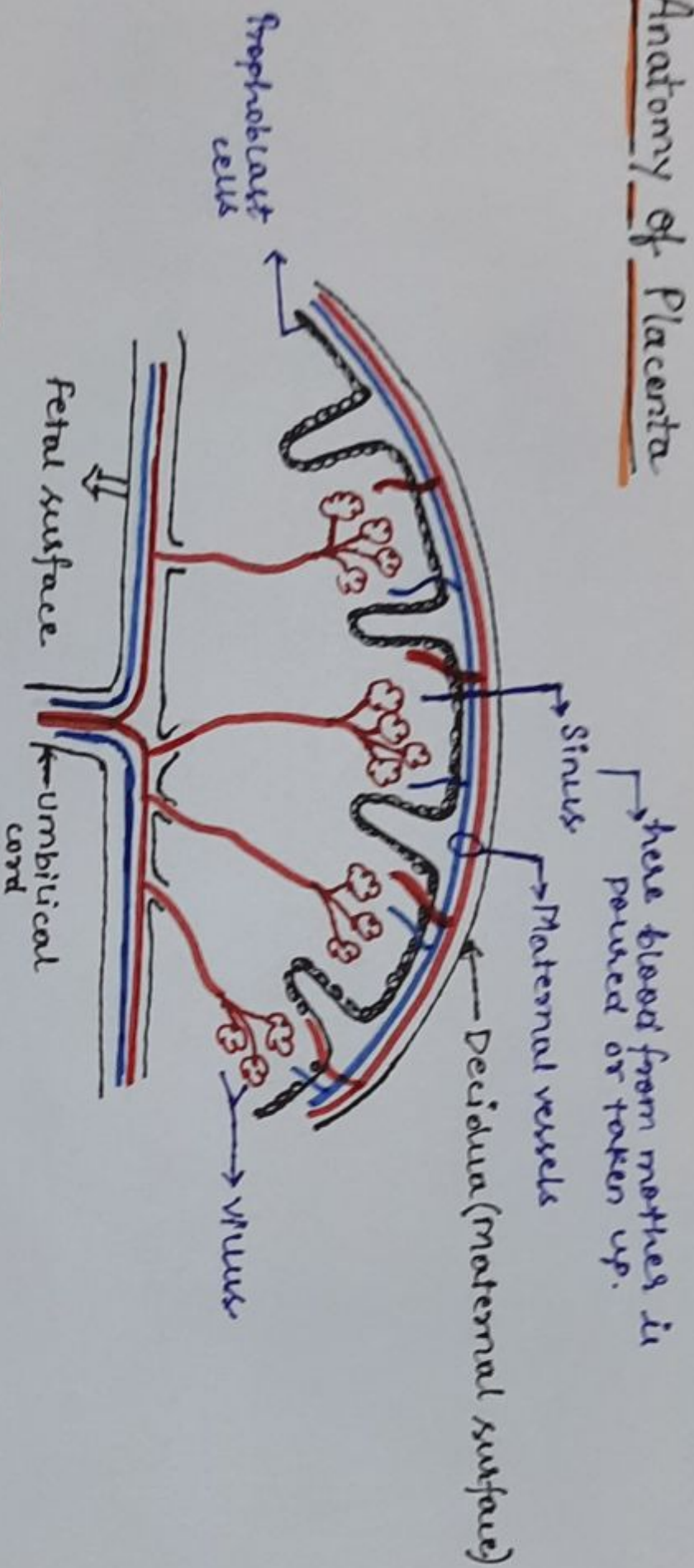
[Mass of cells k/a Decidua]

Decidua



Only source of nutrition for
embryo till 1 week after
implantation

Anatomy of Placenta



Villi carrying fetal blood are surrounded by sinuses that contain maternal blood.

Functions of Placenta

① Diffusion of Oxygen

Mothers Blood $\xrightarrow[\text{D/t } O_2 \text{ pres. gradient.}]{\text{By simple diffusion (O}_2\text{)}}$ Fetal Blood

pO_2 of 30mmHg is still capable of providing sufficient O_2 to fetal tissues d/t :-

➔ Presence of fetal hemoglobin

↳ shifts ODC to left ($\uparrow$ affinity of Hb with O_2)

➔ Conc. of Hb of fetal blood (50%) $\rightarrow$ Conc. of Hb of mother

∴ Amt. of O_2 transport $\uparrow$ es.

➔ Double Bohr's effect.

[Both effect :- $\uparrow pCO_2 \Rightarrow$ Hb dissociation with $O_2 \uparrow$
 $\downarrow pCO_2 \Rightarrow$ Hb association with $O_2 \uparrow$]

Fetal blood

$\downarrow pCO_2 \Rightarrow$ Hb association with $O_2 \uparrow$

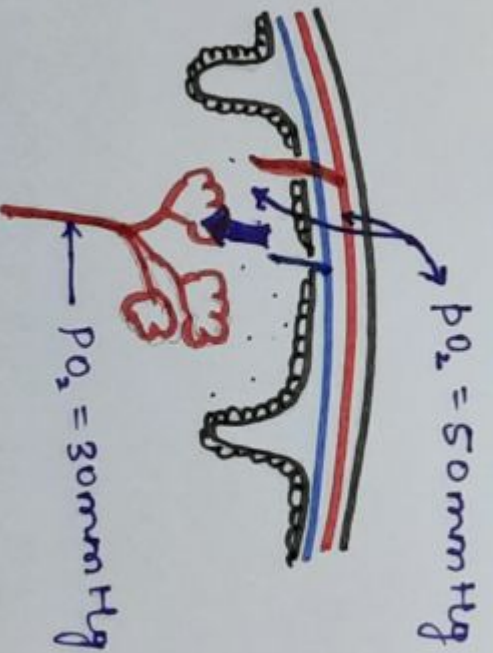
Because it gives to maternal blood.

[Hb- O_2
Hb- O_2]

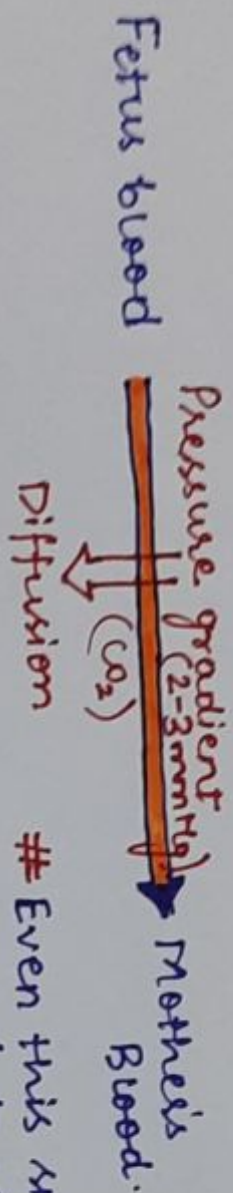
Maternal blood

$\uparrow pO_2 \Rightarrow$ Hb dissociation with $O_2 \uparrow$

O_2



② Diffusion of carbon dioxide



Even this small pressure gradient is enough to cause adequate diffusion due to extreme solubility of CO₂ (20 times greater than that of O₂)

③ Diffusion of feedstuffs

Glucose → transported by facilitated diffusion through carrier molecules in trophoblast cells.

Main feedstuff.

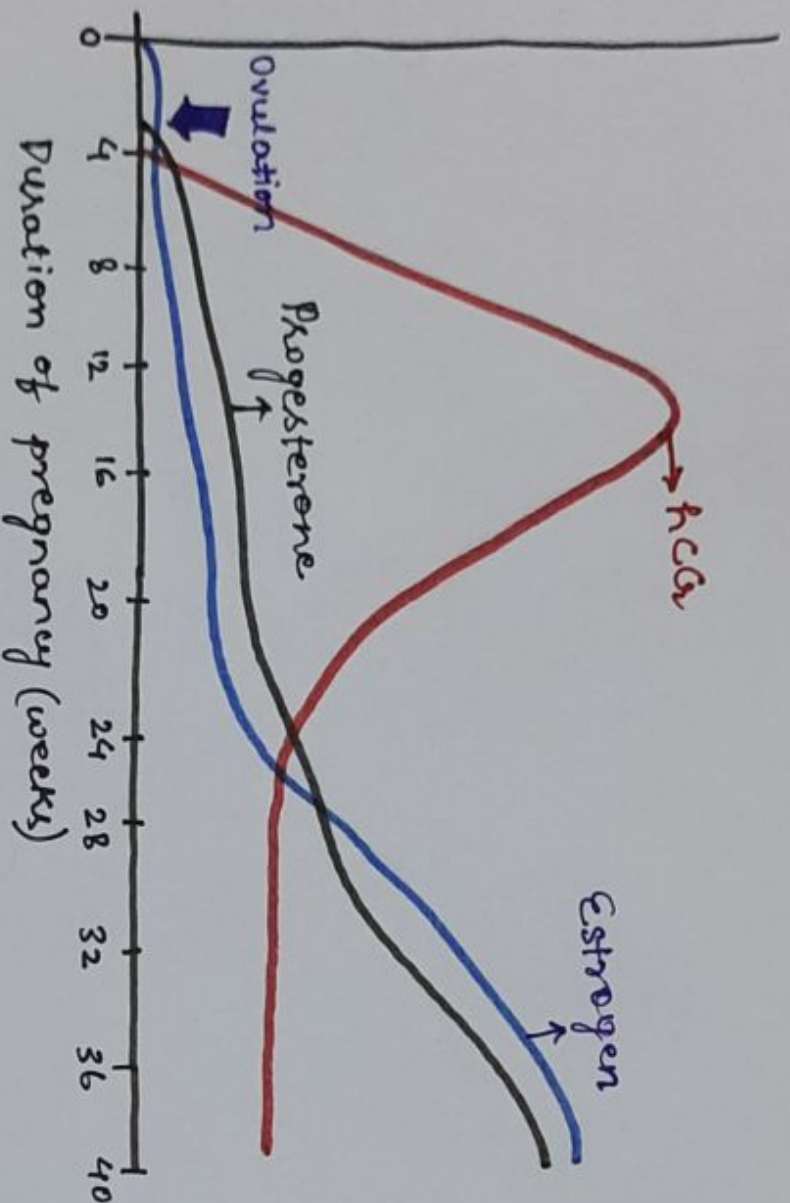
fatty acids → Diffuses through membranes.

④ Excretion of waste products

- By diffusion
- Main excreted products :- NPN (Non Protein Nitrogens)

- ✓ Urea
- ✓ Uric acid
- ✓ Creatinine

Hormonal factors in Pregnancy:-



HCG (Human chorionic gonadotropin)

- Secreted by **Placenta**
- Appears in blood (8-9 days after ovulation), shortly after implantation.
- Appearance of this hormone in urine is basis of test for pregnancy.
- Reaches at max @ 10-12 weeks
- decreases till 16-20 weeks
- Then remains constt.

Functions of hCG

- Acts as LH
- Prevents involution of corpus luteum
 - Secretes E , P → maintains decidua nature of endometrium
 - Degenerates @ 13th - 17th weeks
 - ↓
 - After which placenta takes action of releasing E , P .
- Prevents sloughing off of endometrium (i.e. prevents menstruation)
- hCG stimulates interstitial cells to release T → Dev. of fetal sex organs
→ Descent of testes.

Estrogen

- Secreted by corpus luteum then → Placenta
- Corpus luteum
 - ↓
 - de novo synthesis from basic substrates
- [Placenta ↓ dehydroepiandrosterone 16-hydroxydehydroepiandrosterone] → Estrogen synthesis.

Functions of estrogen

- Generally it has proliferative function on endometrium
- During pregnancy,
 - Enlargement of mother's uterus
 - Enlargement of mother's breast & growth of breast ductal system
 - Enlargement of female external genitalia.

Progesterone

→ secreted by **corpus luteum** ~~then~~ → **placenta**.

functions of progesterone

→ causes development of decidual cells

↓
∴ Provides nutrition to early embryo

→ Uses contraction of uterus → preventing uterine contraction from causing spontaneous abortion.

→ $\textcircled{E} + \textcircled{P}$

Acts synergistically → Lactation.