

Dr. Rajesh Verma, Assistant professor and  
Head, U.G. Department of Zoology, D.K.  
College, Dumraon (Bihar). Notes for  
B.Sc. part 2nd, paper I V (A)

Question :- Write notes on Development of  
placenta?

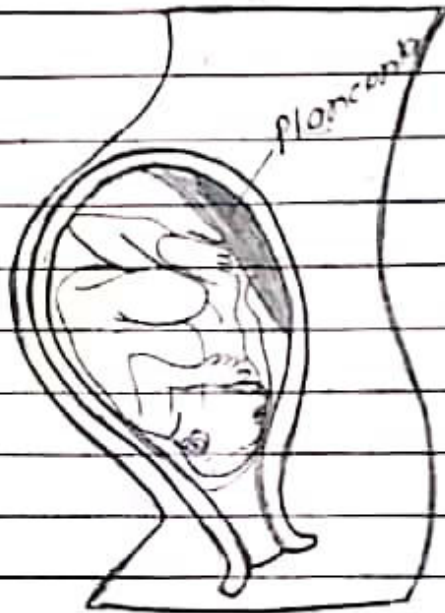
Answer :- Placenta :-

The placenta is a temporary organ that connects the developing fetus via the umbilical cord to the uterine wall to allow nutrient uptake, thromboregulation, waste elimination, and gas exchange via the mother's blood supply; to fight against internal infection; and to produce hormones which support pregnancy. Placentas are a defining characteristic of placental mammals, but are also found in marsupials and some non-mammals with varying levels of development.

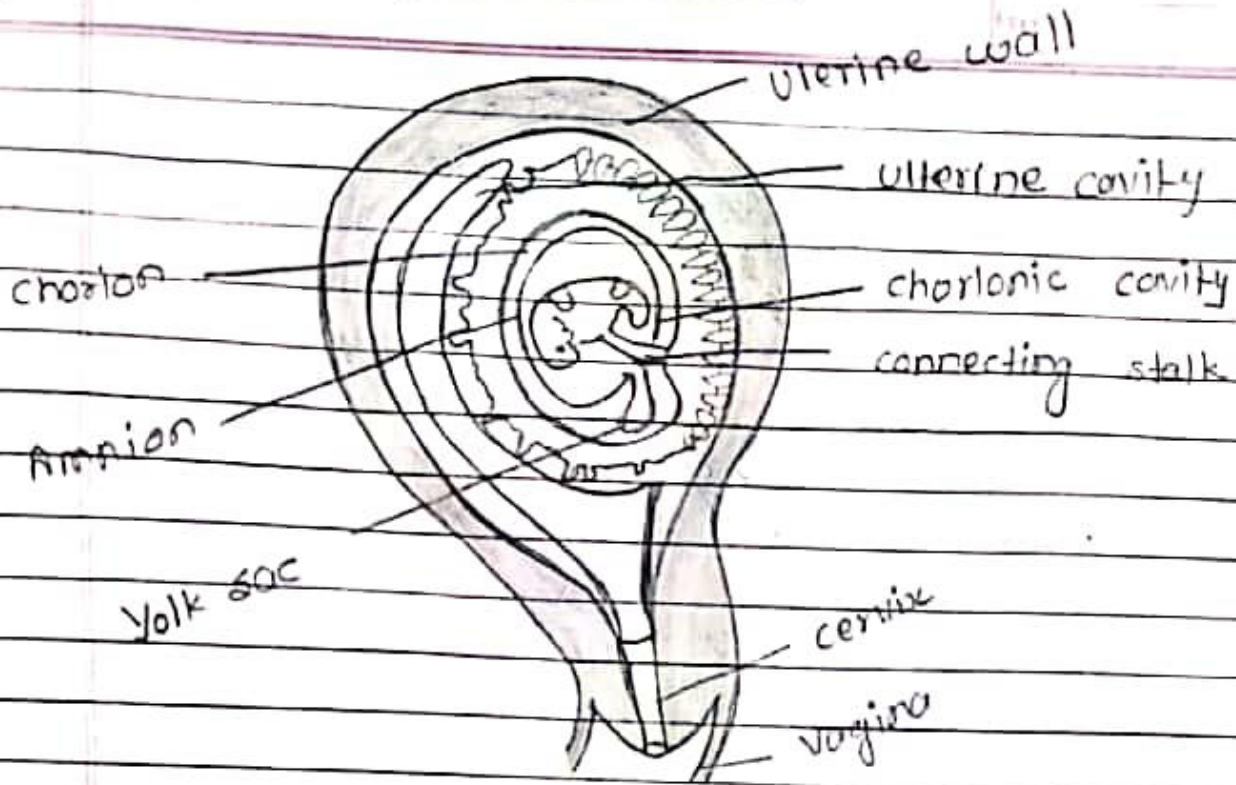
Details

Procurvate	decidua basalis
	chorion frondosum

## Placenta



The placenta functions as a fetomaternal organ with two components: the fetal placenta (Chorion frondosum), which develops from the same blastocyst that forms the fetus, and the maternal placenta (Decidua basalis), which develops from the maternal uterine tissue. It metabolizes a number of substances and releases metabolic products into maternal or fetal circulations. The placenta is expelled from the body upon birth of fetus.



The developing fetus during 10th week of intrauterine life.

### Development of placenta

#### structure :-

Placental mammals, such as humans, have a chorioallantoic placenta that forms from the chorion and allantois. In humans, the placenta averages 20 cm (8 inch) in length and 2-2.5 cm (0.8 - 1 inch) in thickness, with the center being the thickest, and the edges

being the thinnest, it typically weighs approximately 500 grams (just over 1 lb). It has a dark reddish-blue or crimson color. It connects to the fetus by an umbilical cord of approximately 55-60 cm (22-24 inch) in length, which contains two umbilical arteries and one umbilical vein.

Maternal Maternal placental circulation

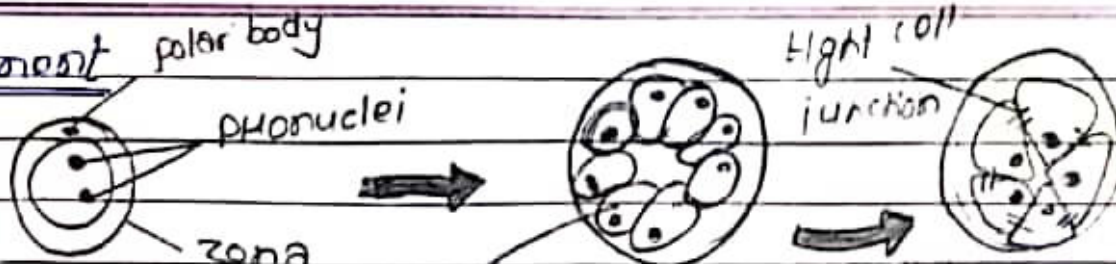
In preparation for implantation of the blastocyst, the endometrium undergoes decidualization. Spiral arteries in the decidua are remodeled so that they become less convoluted and their diameter is increased. The increased diameter and straighter flow path both act to increase maternal blood flow to the placenta. There is relatively high pressure as the maternal blood fills intervillous space through these spiral arteries which bathe the fetal villi in blood, allowing and exchange of gases to take place.

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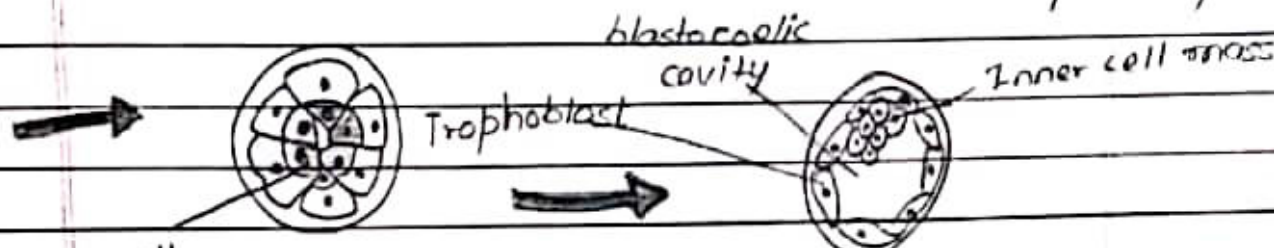
Development



DAY 1 :- Fertilisation

Days: cleavage /

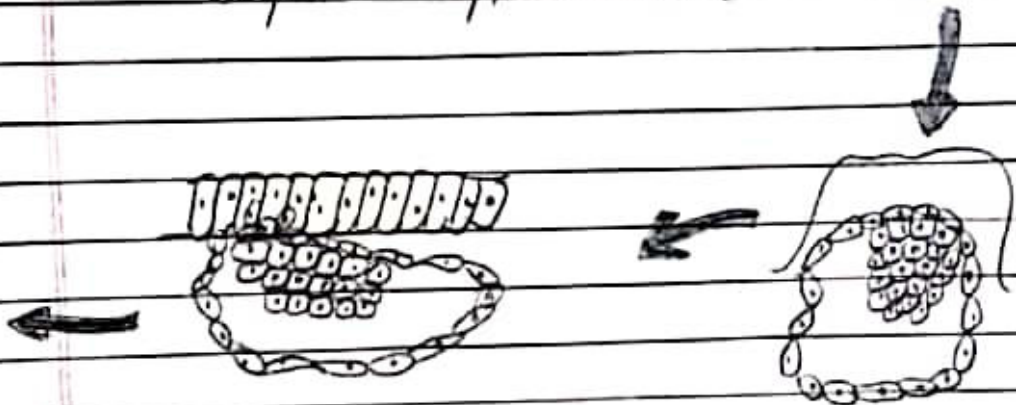
Day 3 :- compact



Inner cell

Day 4 :- Differentiation

Days :- Cavitation



Day 7 :- Implantation

Day 6 :- zona hatching

The placenta begins to develop upon implantation of the blastocyst into the maternal endometrium. The outer layer of the blastocyst becomes the trophoblast, which forms the outer layer of the placenta.