1) DISCUSS THE SECOND WEEK OF DEVELOPMENT

During the second week of embryonic development three major events occur which are as follows;

a) Completion of implantation
b) Formation of bilaminar germ disc
c) Development of extra embryonic structure

DAY 8

- The blastocyst is partially embedded in the endometrium
- The synchytrophoblast will continue to erode the endometrium
- The cells of the cytobrophoblast will continue to divide and migrate to the region of synchytrophoblast
- The embryoblast will differentiate into two types of cells; a cuboidal cell called hypoblast and a columnar cell called epiblast. The cells of the epiblast that are adjacent (closer) to the cytrobrophoblast are known as amnioblasts and the space between the epiblast (amnioblasts) and the cytobrophoblasts is called amniotic cavity, therefore the epiblasts surround the amniotic cavity.
- It is the epiblast and hypoblast that will give rise to the bilaminar germ disc.

DAY 9

- The blastocyst is deeply embedded in the endometrium , the synchytrophoblast will continue erode the endometrium and the cells of the cytrobrophoblast will continue to divide and migrate into the region of the synchytrophoblast.
- The surface epithelium is closed by fibrin coagulum. The exocoelomic membrane/ heuser's membrane is another membrane that develops adjacent to the cytobrophoblast and it surrounds the exocoelomic cavity or the primary umbilical cavity or primary yolk sac
- Vacuoles develop the region of the synchytrophoblast called lacunas, this stage is called synchytrophoblast lacunae

DAY 11-12

- The blastocyst is completely embedded in the endometrium as the synchytrophoblast continue to erode the region of the endometrium and the cytobrophoblast continue to divide and migrate into the region of the synchytrophoblast.
- Ruptured capillaries called sinusoids will begin to appear because as the synchytrophoblast erodes into the endometrium, it destroys some structures (blood vessels) causing rupture (spillage of blood). The ruptured maternal sinusoid will communicate with the trophoblastic lacunae by transporting blood and nutrients and oxygen and at this stage a utero-placenta circulation (primodial-utero-placenta circulation) is established.
- A space of mesoderm develops between the region of exocoelomic membrane and cytobrophoblast and also the space between the amnioblast and cytobrophoblast except at a point where the connecting stalk is present. The mesoderm is known as extraembryonic mesoderm. Inside the extraembryonic mesoderm, some cavities known as extraembryonic coelom/ cavity are formed and this cavity divides the mesoderm into two parts. These parts are the extraembryonic somatic mesoderm that lines the cytobrophoblast and amnioblast, the second part is the extraembryonic splankning mesoderm and it lines the yolk sac. A reaction known as desidual reaction takes place and this reaction provides nutrition for the developing embryo. The endometrium swells from the accumulation of lipids and glycogen.

DAY 13

- The surface of endometrium is completely covered by surface epithelium
- Occasional bleeding occurs at the site of implantation due toincreased blood flow into the lacunae spaces
- The primary yolk sac reduces in size and is known as secondary yolk sac which is also known as definite yolk sac or secondary umbilical vesicle
- The yolk sac although it contains no yolk is necessary for the transfer of nutrients between mother and fetus

- Large portions of the exocoelomic cavity are pinched off to form exocoelomic cysts
- The synsititium covers the primary villi and the cytobrophoblast form folds called primary villi and this folds are covered from celled called sysitium.