Recap Development and Heredity Chapter 20

1. Released ------------ is covered by a non-cellular -------- and follicular cells called -------- -------------. Fallopian tubes draws celomic fluid in them by beating cilia and sperms can come in contact in proximal fallopian tubes.

2. ------------------ is the entry sperm into an egg. Enzymes released by several sperms remove cells of corona radiata. The contact of 1st sperm results in ---------- -------------. The sperm is engulfed and changes in egg membrane prevent entry of any further sperms. Secondary oocyte undergoes Meiosis-2 and produces the female pronucleus and 2nd polar body. Sperm produces male pronucleus. Spindle formation is initiated and degeneration of nuclear membranes results in intermixing of chromosomes of male and female pronuclei = Amphimixis. Fertilization is complete. The first diploid cell is called zygote. Fig 20.1

3. ------------------ is the series of mitotic divisions that divide the zygote into $2 \rightarrow 4 \rightarrow 8 \rightarrow 16 \rightarrow 32$ and so on cells. At first a solid ball of cells, ----------is formed. The embryo continues to roll towards uterus.

4. The cells of morula continue to divide and rearrange to form a hollow ball of ball of cells called -- ----------which is formed of about 150 cells. It has an -------- of embryonic cells surrounded by extra-embryonic --------------. Inner Mass develops into embryo. Trophoblast absorbs nutrient rich uterine fluid and participates in formation of extra-embryonic membranes. It takes 6-7 days to form Blastocyst after fertilization / conception. Blastocyst reaches uterus and gets attached to inner wall of uterus, a process termed ------------------.

5. The 1st embryonic structure to possess 3 distinct germ layers is ----------. 3 germ layers are ------- ----, ---------- and ----------. Each germ layer produces particular tissues/organs in embryo called fate of germ layers.

6. -------------- forms epidermis and associated glands, nails and hair, nervous tissue including brain and spinal cord and mucous linings of mouth, anus and nasal cavities; pituitary and adrenal medulla.

7. -------------- forms muscles, bones and cartilages, heart and vessels, kidneys, gonads and secondary sex organs.

8. -------------- produces Respiratory lining, thymus, thyroid, pancreas, liver, stem cells that produce gametes; distal portions of ducts of urinary and reproductive systems.

9. During pregnancy ovaries stop ovarian cycles and therefore no menstruation. It is 1st sign of pregnancy and can be confirmed with pregnancy kits testing urine having ---------- (human chorionic gonadotropin = HCG hormone).

10. Gestation Period = length of human development from day of fertilization is --------------.
11. Early embryo is covered with embryonic membranes, amnion, chorion, yolk sac and allantois. Allantois surrounds fluid to cushion the embryo against shocks and protect against dehydration. Allantois produces blood cells in early embryo, later this function is taken over by liver. Early embryo develops placenta, to get food and oxygen from mother’s blood and pass out wastes, from another embryonic membrane, allantois. Chorionic villi enter into Endometrium. The composite of chorionic villi and Endometrium surrounding them form Placenta. The embryonic blood capillaries in chorionic villi and maternal capillaries in Endometrium lie very close to each other and exchange of materials (O₂, CO₂, glucose, amino acids, vitamins, urea and lot of others) takes place. Fig 20.5. Allantois is reduced in humans and form part of urinary bladder.

12. Hormone and many other factors initiate spasmodic contractions of uterine smooth muscle fibers termed labor. The goal of labor is forcible expulsion of fetus from uterus. Birth takes place after about 40 weeks from last menstruation.

13. Twins result from fertilization of 2 separate eggs. They are like any other siblings, may be of same or different sexes. They have different combination of genes.

14. Twins form from separated blastomeres of same zygote. They have similar genes and are of same sex and look alike.

15. Somatic cells in body have 46 chromosomes but gametes have 23 chromosomes.

16. Characters are controlled by segments of DNA called genes.

17. are usually 2 forms of a gene; one is (A) and other is (a).

18. has both alleles similar (AA or aa); has different alleles (Aa).

19. are 44 chromosomes common in both males and females.

20. are sex chromosomes in males and are sex chromosomes in females.

21. Females form type of eggs but males form types of sperms.

22. is pictorial arrangement of chromosomes according to size and arrangement of centromeres. It gives information about sex of person and any abnormality of number of chromosome.

23. Genes of colorblindness, hemophilia, and baldness are and are present on chromosome.

24. have the character when 1 allele is present but are normal but carriers, they can pass the gene to their sons or daughters.