

High Yield Hints – Reproduction

REPRODUCTION

1. Reproduction is the process by which an individual multiplies by producing many individuals of same kind. Reproduction may be Asexual or Sexual. In asexual reproduction, gametes are not formed. It may be Fission, Sporulation, Budding etc. Fission is the division of the parent body into two or many pieces and each piece develops into an organism. Fission may be Binary fission (Amoeba, Paramecium, Planaria etc) or Multiple fission (Plasmodium). Sporulation is the division of the nucleus into many pieces followed by the formation of many individuals. Budding is the formation of an individual from the parent body (Hydra). Sexual reproduction involves formation of gametes, fusion of gametes and development of zygote.
2. Seminiferous tubules are the functional units of the testis from which sperms are formed. Primordial germ cells of seminiferous tubules produce sperms, Leydig cells secrete Androgens (Testosterone), and Sertoli cells or Nurse Cells nourish the sperms. Sertoli cells also secrete a hormone Inhibin to inhibit the secretion of FSH. Rete testis is the network of tubules connecting the seminiferous tubules in the central region of testis.
3. Secretion of the Prostate gland makes the sperms active. Secretion of prostate gland contains calcium ions, phosphate ions and an enzyme Prothrombin. Cowper's gland secretes a clear lubricating fluid. Normal pH of seminal fluid is 7.35 to 7.5.
4. Eggs develop in the Graafian follicles of ovary. Graafian follicles also secrete hormones. Naturally occurring Estrogens are Estrone, 17 β - Estradiol and Estrinol. Estradiol is the potent female hormone. Corpus luteum is the ruptured Graafian follicle after ovulation. It secretes Progesterone. Corpus albicans or Yellow body is the degenerating corpus luteum.
5. Fallopian tube is the site of fertilization. Unusual development of egg in the fallopian tube is called Ectopic Pregnancy. Endometrium is the inner vascularised lining of the uterus in which implantation takes place.
6. Zona pellucida is the non-cellular covering of the egg. It is covered with follicle cells, which form the Corona radiata.
7. Menarche is the starting of menstrual cycle and Menopause is the stopping of menstrual cycle.
8. Parthenogenesis is the development of egg without fertilization. It may be Arrhenotoky (only males are formed - Honey bee), Thelytoky (only females are formed - Gall fly) and Amphitoky (both male and females are formed - Aphids).
9. Secretion of Seminal vesicle contains Prostaglandins, which causes contraction of smooth muscles of uterus. Fructose present in the seminal fluid is the source of energy for the sperm.
10. Based on the amount of yolk, eggs may be Alecithal (without yolk - Mammalian egg), Microlecithal (little yolk - Amphibian egg) Megalecithal (large amount of yolk - Bird's egg) etc. Cleidoic eggs are shelled eggs (Birds, Reptiles).
11. Fertilizin is a glycoprotein present on the egg. Antifertilizin (formed of acidic amino acids) is present on the sperm head. Capacitation is the preparation of sperms for fertilization. It starts from Acrosomal reaction. Hyaluronidase and Neuraminidase are the hydrolytic enzymes present in the acrosome of sperm.
12. Artificial insemination refers to the artificial transfer of sperms into the female's body. Surrogate mother carries fertilized egg of another female in her uterus. Oral

contraceptives are birth-controlling pills. These are synthetic estrogens and progesterone. Copper T is an Intra-uterine device (IUD) that release copper ions in the uterus to prevent implantation.

13. Holoblastic cleavage is the complete division of Zygote (Human egg) and Meroblastic cleavage is the partial division (Insects, Reptiles). Spiral cleavage is seen in Nematodes, Rotifers, Annelids and Molluscs.
14. Morula is the 32 celled stage formed after cleavage. Blastula with a cavity is called as Coeloblastula (Frog) and solid blastula is called Stereo blastula (Neries).
15. Vogt developed fate map in 1925. It shows the fate of various germ layers.
16. Foetal membranes or Extra embryonic membranes are Amnion (protection) Chorion (protection, nourishment and excretion), Allantois (respiration, excretion) and Yolk sac (storage of yolk). Human placenta is Haemochorial, Deciduous and Meta discoidal.