

the biological system made up of all the anatomical organs involved in sexual reproduction. Female

genital system: ☞ General structure: ☞ External genital organs: – Valva: formed of labia majora, labia minora & clitoris – Breast (mammary gland). ☞ Internal genital organs: Ovaries (the primary sex organs). – Fallopian tubes. – Uterus. – Vagina. ☞ ovaries: ☞ The ovary is a primary sex organ in female. It lies in the ovarian fossa, on the side wall of the pelvis. ☞ It is ovoid (almond) in shape, smaller than the testis. It is about 3 cm long, 2 cm wide and 1 cm thick. ☞ Functions: (Mixed gland); Endocrine (production of estrogen & progesterone hormones) & Exocrine (production of ova). ☞ Fallopian tubes: ☞ 10 cm in length. ☞ Site of fertilization. Transport zygote to the uterine cavity. ☞ Openings: – Medial opening into the uterine cavity. – Lateral opening into the peritoneal cavity & related to the ovary. ☞ Parts: – Infundibulum: funnel-shaped expansion of the uterine tube. It is characterized by fimbriae which sweep the surface of the ovary to capture the ovum. – Ampulla: the most dilated and longest part. It is the site of fertilization. Isthmus: medial to ampulla, rounded and muscular part of the tube. – Intra-mural (uterine) part: it runs within the myometrium of the uterus. It is the narrowest part of the tube & opens into the uterine cavity. Uterus: ☞ The uterus is a muscular pelvic organ whose function is to provide a nidus for the developing embryo. In the virginal state it is the shape of a flattened pear. ☞ Its size is about 8 × 5 × 3 cm. ☞ It possesses a fundus, body and cervix. It receives the uterine tubes, and the cervix protrudes into the vault of the vagina where it opens. ☞ location: It lies in the pelvic cavity between the urinary bladder with uterovesical pouch of peritoneum anteriorly, and the rectum with recto-uterine pouch (Douglas) of peritoneum posteriorly. Normal position: Anteverted, Anteflexed. Anteversion angle is anterior right angle between the uterus & vagina. Anteflexion angle is an obtuse angle between the body & cervix of the uterus. ☞ Parts: 3 parts – Fundus: the uppermost convex part of the uterus above insertion of fallopian tubes. – Body: the main part about two inches, pear shaped part, has two surfaces (anterior & posterior) and Rt & Lt lateral borders ( which are attached to lateral pelvic wall by broad ligament ). – Cervix: one inch in length, formed of two parts: supra vaginal & vaginal parts. The cervix is the most fixed part of the uterus. – Supra-vaginal part ☞ opens into uterine cavity by internal os. – Vaginal part ☞ opens into the upper part of vagina by external os. It is surrounded by vaginal fornices. ☞ Layers: 3 layers – Epimetrium: the outer peritoneal covering. – Myometrium: the middle main part, formed of smooth muscles. – Endometrium: the inner most layer, formed of 3 layers: – compact layer ☞ the most superficial. – Spongy layer ☞ contains endometrial blood vessels & endometrial glands. – Basal layer ☞ adherent to myometrium. It forms the previous 2 Compact & spongy layers are called the functional layer & are shedding during menstruation. Implantation occurs into the functional layer. ☞ Vagina: ☞ It is a fibro-muscular tube that extends upwards and backwards from its lower end, the vaginal orifice to the cervix at its upper end. ☞ The vaginal orifice is partially closed in virgins by hymen. ☞ The long axis of vagina makes the angle of ante-version with the uterus. ☞ The upper part is related to the vaginal part of the cervix which is surrounded by circular groove called the vaginal fornices. ☞ The anterior wall is 7.5 cm, while the posterior wall is 9 cm. ☞ It is related anteriorly to urethra & urinary bladder base & posterior to rectum and Douglas pouch. Male genital system: ☞ General structure: ☞ External genital organs: – Penis: is the copulatory organ, the penile urethra runs through the whole length of the penis to its expanded external end which is called glans penis. – The scrotum: is a pouch

of skin containing the testes and spermatic cords. The subcutaneous tissue has no fat, but contains the dartos. – Testis: is the primary sex organ. ☞ Internal genital organs: Duct system: – Epididymis. – Vas deferens. – Ejaculatory duct. – Urethra. – Glands: – Prostate. – Seminal vesicles – Bulbourethral (Cowper's) glands. 68 Testis: ☞ The testis is an oval, primary sex organ, it is a mixed gland: – Endocrine ☞ secreting testosterone hormone. – Exocrine ☞ secreting sperms. ☞ Structure: the testis is divided by fibrous septa into 200–300 lobules, each of which contains 1–4 highly convoluted seminiferous tubules, they are sites of sperm formation (spermatogenesis). ☞ The seminiferous tubules open into the rete testis, which is a network of intercommunicating channels lying in the mediastinum testis. ☞ From the rete 12–20 vasa efferentia enter the commencement of the canal of the epididymis, thus attaching the head of the epididymis to the testis. ☞ The seminiferous tubules have several layers of cells. **The outermost layer consists of spermatogonia, which divide to produce the primary spermatocytes.** These divide to form secondary spermatocytes. They divide immediately to form spermatids. These do not divide but undergo a metamorphosis into spermatozoa. The whole process of producing spermatozoa from spermatogonia is called spermatogenesis. ☞ Supporting cells in the testis: Sertoli cells which present inside seminiferous tubules for nutrition of sperms. **Interstitial cells of Leydig present in between seminiferous tubules for secretion of testosterone hormone.** ☞ Coverings: – Tunica vaginalis: is the outer serous sac (an extension of peritoneum). – Tunica albuginea: inner fibrous capsule. It sends septa to divide the testis. ☞ Epididymis: ☞ A highly convoluted duct (about 6 meters in length), formed of head, body & tail. It is attached to the posterolateral surface of the testis. ☞ Epididymis receives vasa efferentia. ☞ Functions: site for sperm maturation. ☞ Vas deferens: ☞ It is a muscular tube that starts as a continuation of the tail of epididymis & ends by joining with the duct of seminal vesicle to form ejaculatory duct. ☞ Its length is about 45 cm & its lumen 0.7 mm. ☞ Function: sperm transport from epididymis to prostatic urethra. ☞ **Ejaculatory ducts: Each duct is about 2cm long & is formed by the union of the duct of seminal vesicle and the lower end of ampulla of the vas deferens.** It ends in the Male sex glands: ☞ Prostate: – The prostate is a partly glandular, partly fibromuscular organ which lies beneath the bladder and above the urogenital diaphragm and is penetrated by the proximal part of the urethra. The prostate is related posteriorly to the rectum. – Functions: it secretes alkaline fluid to neutralize the vaginal acidity. – It produces about 40% of seminal fluid. ☞ Seminal vesicles: – They are a pair of a thin-walled, elongated, coiled, blind-ending tube of about 5 cm long. It lies between the bladder base and the rectum. – The vas deferens, which combine with the duct of the seminal vesicle to form the ejaculatory duct, which subsequently drains into the prostatic urethra. – It produces about 60% of seminal fluid which is nutritive to sperms. ☞ Bulbourethral (Cowper's) glands: – The bulbourethral glands are paired glands which lie one on each side of the membranous urethra. – They open into the bulb of the penile urethra. – Functions: lubricate urethra to allow smooth flow of semen. 71