M.Sc., SECOND SEMESTER

HARD CORE 2 : REPRODUCTIVE BIOLOGY

48 Hrs

UNIT – I

FEMALE REPRODUCTION : **12 Hrs**

a. Origin and migration of primordial germ cells; genetic and hormonal control of differentiation of gonads and gonadal ducts in mammals. **4 hrs**

b. Female Reproductive System-Functional morphology of mammalian ovary, Fallopian tube and uterus. **2 hrs**

Hormonal control of follicular development – Recruitment and selection of follicles and follicular dominance, Ovulation, Atresia and Regulation of corpus luteum **6 hrs**

UNIT – II **12 Hrs**

REPRODUCTIVE CYCLES IN MAMMALS :

a. Comparison of estrous and menstrual cycles
b. Onset of puberty in man – factors affecting onset of puberty
c Menstrual cycle : Different phases, changes in the ovary and uterus and hormonal control **4 hrs**
d. Implantation – Process, Types and hormonal control
e. Pregnancy – length of gestation, hormonal control
f. Parturition – Process of birth and influence of hormones
g. Lactation – Hormonal control of mammary gland, development and lactogenesis **8 hrs**

UNIT – III **12 Hrs**

MALE REPRODUCTION

a. Functional morphology of mammalian testis
b. Kinetics of spermatogenesis – wave and cycle
c. Hormonal control of spermatogenesis
d. Ultrastructure of spermatozoa
e. Abnormalities of sperm
f. Brief description of histomorphology and hormonal control of male accessory organs viz., epididymis, vas deferens, seminal vesicles, ventral prostate, bulbourethral gland and preputial gland
g. Sperm maturation – morphological and biochemical events, influence of accessory organ secretions
h. Biochemistry of semen and capacitation

UNIT – IV **12 Hrs**

a) Fertility control – Need, principles of different male and female temporary and permanent contraceptive methods. **8 hrs**

b) Assisted Reproduction: Artificial insemination, different methods of assisted reproduction. **4 hrs**

PRACTICALS - 6 4 h rs.

1. **Study of**; estrous cycle in rat using vaginal smear, by observation of slides. 4x2 = 8
2. Staining of vaginal smear in laboratory rat 4x2=8
3. Induction of pseudopregnancy in albino rat 4x2=8
4. Demonstration of surgical technique by video clipping 4x4=8
5. Counting of spermatozoa and study of sperm abnormalities in semen samples collected from volunteers / clinical samples 4x2=8
6. Study of different contraceptive devices 4x2=8
7. Observation of permanent Histology slides 4x4=16
   a) Comparative morphological of ovary
   b) Comparative morphology of testis
   c) Comparative study of male and female accessory organs.

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