Veterinary Theriogenology

1. Reproductive Endocrinology of Animals

1.1 Hormones of hypothalamo-pituitary-gonadal axis and other hormones with their functions in male and female reproduction.
1.2 Physiological regulation of animal reproduction through feed-back mechanism.
1.3 Role of hormones on growth, puberty and estrous cycle.
1.4 Different phases and stages of estrus cycle in relation to hormonal changes and changes in reproductive organs.
1.5 Sexual behavior, coitus and oogenesis.
1.6 Spermatogenesis and process of spermatozoa maturation and ejaculation.
1.7 Mechanism of Ovulation.
1.8 Transport of ovum and spermatozoa.
1.9 Capacitation and fertilizing ability of spermatozoa.
1.10 Fertilization and zygote formation.
1.11 Fetal and dam physiology during gestation, peri-parturition and parturition.

2. Veterinary Gynecology and Obstetrics

2.1 Pregnancy diagnosis - external, internal, laboratory and differential diagnosis.
2.2 Diseases and accidents – early embryonic death, prolonged gestation and premature birth.
2.3 Placentation and its classification in animals.
2.4 Abortion in cattle, horse, sheep, goat, swine and dog.
2.5 Mummification and maceration of fetus.
2.6 Induced abortion and extra uterine pregnancy.
2.7 Dropsy of foetal membranes and fetuses.
2.8 Torsion of uterus.
2.9 Vaginal and cervico-vaginal prolapsed.
2.10 Parturition – symptoms and stages, involution of uterus
2.11 Artificial induction of parturition
2.12 Dystocia - types and causes
2.13 Diagnosis, handling and correction measures for different types of dystocia in animals
2.14 Embryotomy/Fetotomy with procedures
2.15 Caeserean section, its procedure and post-operative care
2.16 Ovario-hysterectomy in bitches, its procedure and post-operative care
2.17 Post partum haemorrhage and its control
2.18 Uterine prolapse and its management
2.19 Retention of placenta and its treatments

3. Animal Infertility

3.1 Fertility, infertility and sterility in animals
3.2 Anoestrus in domestic animals, its types and treatments
3.3 Infertility in animals due to trichomoniasis, vibriosis, brucellosis with their diagnosis and treatments
3.4 Hormonal disturbances resulting in infertility
3.5 Infertility and cystic ovarian condition
3.6 Diagnosis and treatment of infertility due to cervicitis and endometritis
3.7 Repeat breeding, its causes, diagnosis and treatment
3.8 Applications of GnRH, PGF2 alpha and progestin hormones to enhance fertility in animals
3.9 Nutrition-reproductive interaction in relation to animal infertility

4. Animal Andrology and Artificial Insemination

4.1 Pre-and post-natal testicular development
4.2 Peri-pubertal and pubertal changes in spermatogonial cells
4.3 Sertoli cells - their transformation and roles in spermatogenesis
4.4 Libido in males and its affecting factors
4.5 Training and maintenance of bulls for artificial semen collection
4.6 Sterilization of equipments used in artificial semen collection and semen processing for cryopreservation
4.7 Artificial Vagina and its assembling for artificial semen collection
4.8 Techniques of artificial semen collection, evaluation, dilution and cryopreservation
4.9 Artificial Insemination (AI) technique in animals

5. Assisted Reproduction Technology in Animals

5.1 Estrus synchronization and fixed time AI protocols in cattle, buffalo, sheep and goat
5.2 Techniques of superovulation in animals
5.3 Preparation of recipient cow for embryo transfer
5.4 Timing of embryo flush and its transfer
5.5 Techniques of embryo transfer in bovines
5.6 Techniques of ovum pick up in bovines
5.7 In-vitro maturation of ovum and in-vitro fertilization techniques

6**. Modern technologies used in Theriogenology**