

Department of Anatomy, BMU

MS Ana- P_AY1B2 / Paper-II

Topics for testing teaching ability

*(These are topics that call for conception and understanding rather than rote memorisation, and that usually need to be taught by the teachers. Any **20** of these topics covering Developmental Anatomy and any **10** covering Genetics have to be selected for the exams of each session and the list of 30 should be provided to the students before the exams to help them in preparing for the exams.)*

General embryology:

Acrosome reaction – definition, characteristics factors responsible and significance

Amniocentesis– definition indications and time, procedure and precautions

Amniotic fluid- formation, functions and clinical significance

Chorionic plate– definition, formation and fate

Cloacal membrane -

Corpus luteum– description, formation, factors responsible for luteinisation and implications

Cranio–caudal and lateral folding of the embryo

Decidual reaction– definition, characteristics factors responsible and significance

Ectodermal placodes

Embryonic and fetal age estimation at different stages

Genetic exchange in meiosis– description and implications

Germ disc in the 3rd week of development.

Importance of reduction division– explanation with example

Induction– definition, mechanism, examples and implications

Malformation, deformation and disruption – definitions, explanations and examples

Mechanisms involved in development

Paraxial mesoderm- differentiation and fate

Phylogeny repeats in ontogeny

Placental barrier/transport

Principles of teratogenesis

Sex differentiation– process, factors involved and their role in the differentiation

Significance of the embryonic period

Spermiogenesis – time of occurrence, description and implications

Types of growth according to mechanisms involved

Uterine cycle– description and control

Reproductive anatomy & fertility:

Adolescence

Artificial insemination

Cloning

Cryopreservation of sperms

Gamete in trafullopien transport (GIFT)

Puberty in any one sex– definition, changes at puberty and mechanisms of the changes

Surrogate mother

Genetics:

Any one structural anomaly chromosome – definition, mechanism and implications

deletion

duplication

Inversion

isochromosome

ring chromosome

translocation

Anaphase lag- definition and significance

Any one numerical anomaly of chromosome – definition, mechanism and implications (trisomy, monosomy, aneuploidy, polyploidy etc.)

Characteristics of any one mode of inheritance- description and explanation of the characteristics

Chromatin: euchromatin, heterochromatin

Chromosome – structure (in detail)

Different types of gene and their function

DNA synthesis and redistribution for mitosis and meiosis

Non-disjunction

Gene –What is it?

Inactivation of X chromosomes

Karyotyping

Lyon's hypothesis

Mendel's law of independent assortment

Mendel's law of segregation

Mosaicism

Mutation– What, how and where relationship with heritability

Satellite bodies –utility

Sex chromosome

Utility of Barr body

Watson-Crick model of DNA structure, classification