[KD 223] APRIL 2001 Sub. Code : 2236

M.S. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Describe the development of kidney and its various congenital anomalies. (25)

2. Describe the formation of pharyngeal arches, their derivatives and their innervation. (25)

3. Write briefly on : (5 × 10 = 50)

(a) Transcription.

(b) Genetic counselling

(c) Midgut rotation.

(d) Crossing over.

(e) Neural crest cells.

NOVEMBER 2001

[KE 223] Sub. Code : 2236

M.S. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Describe the formation of mesonephric and paramesonephric ducts and their derivatives in both sexes. (25)

2. Describe the formation of placenta and types of placentation. (25)

3. Write briefly on : (5 × 10 = 50)

(a) Gene therapy.

(b) Down's syndrome.

(c) Development of suprarenal gland.

(d) Isochromosomes.

(e) Somites.

[KG 223] MARCH 2002 Sub. Code : 2236

M.S. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours Maximum : 100 marks

All questions should be answered.

1. Development of upperlimb and describe how the major nerves occupy their final position. (26)

2. Discuss the principles and application of Recombinant DNA technology. (26)

3 Write notes on : (4 × 12 = 48)

(a) Genetic engineering.

(b) Oncogenes.

(c) Embryological reasons for anomalous ureter.

(d) Development of lip and its congenital defects.

SEPTEMBER 2002

[KH 223] Sub. Code : 2236

M.S. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours Maximum : 100 marks

1. Describe the development of the lower limb. How the major nerves occupy their final position? (26)

2. Discuss variations in Gene expression. (26)

3. Write notes on : (4 × 12)

(a) Genetic counselling.

(b) Regulator genes.

(c) Development of lens and causes of congenital cataract.

(d) Fronto–nasal process.

[KI 223] APRIL 2003 Sub. Code : 2236

M.S. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Describe the foetal circulation and explain the changes that take place at birth. (25)

2. Describe the development of the female genital tract, including external genitalia. (25)

3. Write briefly on : (5 × 10 = 50)

(a) Graffian follicle

(b) Proencephalon and its derivatives

(c) Meckel's diverticulum

(d) Spina bifida

(e) Genetic code.

[KJ 223] OCTOBER 2003 **Sub. Code : 2236**

M.S. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours — Maximum : 100 marks

Theory : Two hours and forty minutes — Theory : 80 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

M.C.Q. must be answered **SEPARATELY** on the answer sheet provided as per the instructions on the first page.

Answer ALL questions.

Draw suitable diagrams wherever necessary.

Write an essay on : (2 × 15 = 30)

1. Describe the development of face with neat diagram. What are the age changes in the mandible?

2. Describe the chromosomal aberrations.

3. Write short notes on : (10 × 5 = 50)

(a) Pre-natal diagnosis.

(b) Translocation.

(c) Sex-linked inheritance.

(d) Paraxial mesoderm.

(e) Development of Thyroid gland.

(f) Rotation of gut.

(g) Atrial septal defect.

(h) Fertilization.

(i) Hardy-Weinberg's syndrome.

(j) Autosomal dominant inheritance.

[KK 223] APRIL 2004 Sub. Code : 2236

M.S. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

A. Write an Essay on : (2 × 15 = 30)

(1) Describe the development of Kidney. Add a note on congenital anomalies associated with it.

(2) Describe the derivatives of pharyngeal arches.

B. Write short notes on : (10 × 5 = 50)

(1) Development of upper lip

(2) Prenatal diagnosis

(3) Axis artery

(4) Gene therapy

(5) Transcription

(6) Terratogens

(7) Turner's syndrome

(8) Karyotyping

(9) Development of pancreas

(10) Graafian follicle.

AUGUST 2004

[KL 223] Sub. Code : 2236

M.S. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Write an Essay on : (2 × 15 = 30)

(1) Give an account of morphology and aging of PLACENTA. Add a note on its development.

(2) Describe the development of the right atrium. Mention the congenital anomalies related to the development of the interatrial septum.

II. Write short notes on : (10 × 5 = 50)

(a) Inversion.

(b) Mutation.

(c) Development of Thyroid gland.

(d) Mullerian duct.

(e) Derivatives of 3rd branchial arch.

(f) Rotation of the gut.

(g) Ovula Nabothi.

(h) Neural tube T.

(i) Blastocyst.

(j) Amnion.

FEBRUARY 2005

[KM 223] **Sub. Code : 2236**

M.S. DEGREE EXAMINATION

(Revised Regulations)

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

Write an Essay on (2 × 15 = 30)

(1) Describe the development of kidney and mention the developmental anomalies giving reasons. (15)

(2) Describe the formation, parts and derivative of intra embryonic mesoderm. (15)

II. Write Short notes on : (10 × 5 = 50)

(a) Development of limb buds.

(b) Development of Spleen.

(c) Cerebral vesicles and their derivatives.

(d) Primitive streak and its importance.

(e) Ductus arteriosus.

(f) Descent of Testes.

(g) Pedigree symbols.

(h) Philadephia chromosome.

(i) Staining methods of chromosomes.

(j) Genetic Screening.

FEBRUARY 2006

[KO 223] Sub. Code 2236

M.S. DEGREE EXAMINATION.

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Write essays on : (2 × 15 = 30)

(1) Describe the development of the kidney in detail mention the developmental anomalies.

(2) Describe the development of the diaphragm in detail mention the development Anomalies.

II. Write short notes on : (10 × 5 = 50)

(a) Primitive streak.

(b) Changes in II week of development.

(c) Karyotype.

(d) Development of Right atrium.

(e) Fate of cloaca.

(f) Fate of first pharyngeal arch.

(g) Development of Pituitary gland

(h) Down's syndrome.

(i) Barr bodies

(j) Development of lesser sac.

SEPTEMBER 2006

[KP 223] **Sub. Code : 2236**

M.S. DEGREE EXAMINATION.

Branch V — Anatomy

Paper II — EMBRYOLOGY AND GENETICS

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Write essays on :

(1) Development of the vertebral canal. Add a note on its comparative anatomy. (20)

(2) Development of aortic arches and its derivatives. (15)

(3) Describe the formation and derivatives of Branchial apparatus. (15)

II. Write short notes on : (6 × 5 = 30)

(a) Ossification

(b) The genetic code

(c) Attributes of the human placenta

(d) Intra embryonic mesoderm

(e) Twinning

(f) Sex linked inheritance.

[KQ 219] MARCH 2007 Sub. Code : 2236

M.S. DEGREE EXAMINATION.

Branch V — Anatomy

EMBRYOLOGY AND GENETICS

Common to

Paper II — (Old/New/Revised/Regulations)

(Candidates admitted from 1988–89 onwards)

and

Paper II — (For candidates admitted from 2004-05 onwards)

Time : Three hours — Maximum : 100 marks

Theory : Two hours and forty minutes — Theory : 80 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay :

1. Describe the development of Eye. (20)

2. Describe the development of Placenta. (15)

3. Describe the development of inferior vena cava. (15)

II. Short notes : (6 × 5 = 30)

(a) Yolk sac

(b) Meiosis

(c) Hox genes

(d) Apoptosis

(e) Cloning

(f) Translocation.

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SEPTEMBER 2007

[KR 229] **Sub. Code : 2234**

M.S. DEGREE EXAMINATION.

Branch V — Anatomy

EMBRYOLOGY AND GENETICS

Common to

Paper II — (Old/New/Revised/Regulations)

(Candidates admitted upto 2003–04)

and

Paper II — (For candidates admitted from 2004–2005 onwards)

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay :

1. Describe the development of ear. (20)

2. Describe the development of caecum. (15)

3. Describe the development of male reproductive system. (15)

II. Short notes : (6 × 5 = 30)

(a) Assisted reproductive techniques

(b) Fertilization

(c) Gene pool

(d) Transcription

(e) Karyotyping

(f) Cell culture

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[KS 229] **Sub. Code : 2234**

M.S. DEGREE EXAMINATION.

Branch V — Anatomy

EMBRYOLOGY AND GENETICS

Common to all candidates

Q.P. Code : 222234

Time : Three hours Maximum : 100 marks

Answer ALL questions.

I. Essay questions : (2 × 20 = 40)

(1) Describe the development of face. Mention the developmental anomalies of face.

(2) Describe the development of kidney.

II. Short notes : (10 × 6 = 60)

(1) Implantation.

(2) Spermatogenesis.

(3) Corpus Leuteum.

(4) Down syndrome.

(5) Barr body.

(6) Morphology of chromosomes.

(7) Mutation of genes.

(8) Sex-linked genes.

(9) Genotype and phenotype.

(10) Investigations to find out genetic diseases.

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September 2008

[KT 229] **Sub. Code: 2234**

M.S. DEGREE EXAMINATION

Branch V – ANATOMY

Paper II – EMBRYOLOGY AND GENETICS

(Common to all candidates)

Q.P. Code : 222234

Time : Three hours **Maximum : 100 marks**

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions : **(2 X 20 = 40)**

1. Describe the fate of endodermal cloaca and mention the congenital anomalies.

2. Define the abnormalities of chromosomes and explain their role in producing different syndromes.

II. Write short notes on : **(10 X 6 = 60)**

1. Rotation of midgut.
2. Intermediate inheritance.
3. Development of lens.
4. Fate of intra embryonic coelomic cavity.
5. Genome project.
6. Primary organizer.
7. Arteries of lowerlimb.
8. Development of pancreas and congenital abnormalities.
9. Development of palate.
10. D.N.A. hybridization techniques.

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March 2009

[KU 229] **Sub. Code: 2234**

M.S. DEGREE EXAMINATION

Branch V – ANATOMY
(Common to all candidates)
Paper II – EMBRYOLOGY AND GENETICS
Q.P. Code : 222234

Time : Three hours **Maximum : 100 marks**

Answer ALL questions
Draw suitable diagram wherever necessary.

I. Essay questions : **(2 x 20 = 40)**

1. Give a detailed account of the formation and derivatives of somites.

2. Give a detailed account of structural abnormalities of chromosomes, along with examples of clinical cases seen in humans.

II. Write short notes on : **(10 x 6 = 60)**

1. Inter atrial septum – development.
2. Foetal staging.
3. Classification of chromosomes.
4. Development of the lung.
5. Oogenesis.
6. Development of neurocranium.
7. Control of embryonic development.
8. Development of thoracoabdominal diaphragm.
9. Fluorescent in situ hybridization.
10. Alar plate derivatives in the CNS.

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September 2009

[KV 229] **Sub. Code: 2234**

M.S. DEGREE EXAMINATION

Branch V – ANATOMY
(Common to all candidates)
Paper II – EMBRYOLOGY AND GENETICS
Q.P. Code : 222234

Time : Three hours **Maximum : 100 marks**

Answer ALL questions
Draw suitable diagram wherever necessary.

I. Essay questions : **(2 x 20 = 40)**

1. Describe the development and derivatives of pharyngeal arches and pharyngeal pouches.

2. Give a detailed account of development of kidney. What are the congenital anomalies associated with its development?

II. Write short notes on : **(10 x 6 = 60)**

1. Derivatives of cloaca.
2. Fallot's tetralogy.
3. Dermatoglyphics in genetics.
4. Ductus arteriosus.
5. Amniocentesis.
6. Karyotyping.
7. Ventral mesogastrium.
8. Neural crest and its derivatives.
9. Foetal membranes.
10. Klinefelter's syndrome.

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March 2010

[KW 229] **Sub. Code: 2234**

M.S. DEGREE EXAMINATION

Branch V – ANATOMY
(Common to all candidates)
Paper II – EMBRYOLOGY AND GENETICS
Q.P. Code : 222234

Time : Three hours **Maximum : 100 marks**

Answer ALL questions
Draw suitable diagram wherever necessary.

I. Essay questions : **(2 x 20 = 40)**

1. Describe the development of portal vein and its anomalies.

2. Describe the placenta and its anomalies in detail.

II. Write short notes on : **(10 x 6 = 60)**

1. Derivatives of germ layers.
2. Development of male urethra.
3. Endodermal cloaca.
4. Axis artery of lower limb.
5. Development of arch of aorta.
6. Single gene disorders.
7. Chorionic villous biopsy.
8. Banding techniques.
9. Development of diaphragm.
10. Development of spinal cord.

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MAY 2011

[KY 117] **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code : 202090

Time : 3 hours (180 Min) **Maximum : 100 marks**

Answer ALL questions in the same order.

I. Essay :	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. Describe the development and mention the derivatives of the intraembryonic coelom.	6	15	10
2. Draw a diagram and describe the development of the eye.	6	15	10

II. Short Questions:

1. Identical twin.	3	8	5
2. Mendel's laws.	3	8	5
3. Fertilization.	3	8	5
4. Klinefelter syndrome.	3	8	5
5. Tertiary follicle.	3	8	5
6. Cleft palate.	3	8	5
7. Otic vesicle.	3	8	5
8. Development of tooth.	3	8	5

III. Reasoning Out:

Each of the following questions has a stem followed by five options. Mention whether the options are TRUE or FALSE and mention the REASON.

1. The placenta is formed from the a) Synctiotrophoblast b) Cytotrophoblast c) Extraembryonic d) Decidua basalis e) Amniotic cavity.	4	10	5

(PTO)

	Pages (Max.)	Time (Max.)	Marks (Max.)
2. The sphenoid bone is formed by the a) Ala temporalis b) Ala orbitalis c) Periotic capsule d) Hypophyseal cartilage e) Trabeculae cranii.	4	10	5
3. The arch of the aorta is formed by the a) Left horn of aortic sac b) Fourth aortic arch c) Third aortic arch d) Left dorsal aorta e) Carotid duct.	4	10	5
4. The ovary is developed from a) The paraxial mesoderm b) The intermediate mesoderm c) The coelomic epithelium d) Primordial germ cells e) Mesonephric duct	4	10	5

IV. Very Short Ansers :

1. Name two numerical chromosomal anomalies affecting autosomes and causing aneuploidy.	1	4	2
2. Name the two constituents of primary chorionic villi.	1	4	2
3. Name two neural tube defects.	1	4	2
4. Name two skull bones which develop both by membranous and cartilaginous ossification.	1	4	2
5. What is meant by reversed rotation of the Gut?	1	4	2
6. Name any two congenital malformations that result from abnormal migration of neural crest cells to the conus cordis and truncus arteriosus.	1	4	2
7. Name the two constituents of the prosencephalon.	1	4	2
8. Name the mode of inheritance of sickle cell anaemia.	1	4	2
9. Mention the parts of a somite.	1	4	2
10. Name the condition where a foetus has two different cell lines.	1	4	2

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October 2011

[KZ 117] **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

EMBRYOLOGY AND GENETICS

Q.P. Code : 202090

Time : 3 hours (180 Min) **Maximum : 100 marks**

Answer ALL questions in the same order.

I. Essay :	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. Prenatal assessment of growth and development of foetus.	6	15	10
2. Development of Uterus.	6	15	10

II. Short Questions:

1. Descent of testis.	3	8	5
2. Yolk sac.	3	8	5
3. Development of mammary gland.	3	8	5
4. Notochord.	3	8	5
5. Klienfelter's Syndrome.	3	8	5
6. Development of tongue.	3	8	5
7. Formation of neural crest cells and their derivatives.	3	8	5
8. Development of diaphragm.	3	8	5

III. Reasoning Out:

1. Zona pellucida is a. Secreted by granulosa cells b. Produced by theca interna cells c. Composed of a simple squamous epithelium d. Shed before implantation e. Formed by glycoprotein	4	10	5
2. Mesonephric ducts form a. vas deferens b. Epididymis c. Seminiferous tubules d. Seminal vesicles e. Ejaculatory ducts	4	10	5

(PTO)

	Pages (Max.)	Time (Max.)	Marks (Max.)
3. Cri – du – chat syndrome a. Such children have a cat like cry b. Occurs due to non-disjunction c. Is due to deletion of terminal portion of short arm of chromosome 5 d. Such children have mental retardation e. Such children have hypertelorism	4	10	5
4. The secondary chorionic villi contains a. Foetal blood vessels b. Foetal connective tissue c. Syncytiotrophoblast d. Cytotrophoblast e. Maternal blood vessels	4	10	5

IV. Very Short Answers :

1. Features of meiosis.	1	4	2
2. Derivatives of second pharyngeal arch.	1	4	2
3. Development of pituitary.	1	4	2
4. Barr body.	1	4	2
5. Capacitation.	1	4	2
6. Tetralogy of Fallot.	1	4	2
7. Gastrulation.	1	4	2
8. Name the disorders of the chromosomes.	1	4	2
9. Name the axis arteries of the lower limb.	1	4	2
10. Remnants of notochord.	1	4	2

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[LA 117] **April 2012** **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code : 202090

Time : 3 hours **Maximum : 100 marks**
(180 Min)

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. Describe the development of placenta and the anomalies associated with it	9	15	10
2. Describe the development of heart.	9	15	10
II. Short Questions:			
1. Fate of notochord.	3	8	5
2. Types of tracheo- esophageal fistulae.	3	8	5
3. Formation of ring chromosome.	3	8	5
4. Derivatives of second arch cartilage.	3	8	5
5. Causes of exstrophy of urinary bladder.	3	8	5
6. Failure of obliteration of cervical sinus.	3	8	5
7. Formation of pleural cavity.	3	8	5
8. Urea of gene therapy.	3	8	5
III. Reasoning Out:			
Each of the following questions has a stem followed by five options. Mention whether the options are TRUE or FALSE and mention the REASON.			
1. The renal segment of the inferior vena cava develops from a) Right sub cardinal vein b) Right sacrocardinal vein c) Right sacrocardinal subcardinal anastomosis	5	10	5

(PTO)

d) Right posterior cardinal vein			
e) Right supracardinal vein			
2. The testis develops			
a) Coelomic epithelium			
b) Intraembryonic mesoderm			
c) Paraxial mesoderm	5	10	5
d) Primordial germ cells			
e) Mesonephric duct			
3. Gastrulation means formation of			
a) Bilaminar germ disc			
b) All three germ layers			
c) Primitive streak	5	10	5
d) Extraembryonic mesoderm			
e) Notochord			
4. Mesonephric duct in the male gives rise to			
a) Ureter			
b) Epididymis			
c) Vas deferens	5	10	5
d) Seminal vesicle			
e) Appendix of epididymis			

IV. Very Short Answers :

1. Mention the purpose of using phytohaemagglutinin in karyotyping.	1	4	2
2. Mention the substance that is elevated in maternal serum in foetal neural tube defects.	1	4	2
3. What is dextrocardia?	1	4	2
4. What is congenital megacolon?	1	4	2
5. What is spina bifida occulta?	1	4	2
6. Name two anomalies associated with the development of uterus.	1	4	2
7. Mention two flexures of the neural tube.	1	4	2
8. Name of mode of inheritance of achondroplasia.	1	4	2
9. Mention two features of first arch syndrome.	1	4	2
10. What is scaphocephaly?	1	4	2

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(LC 117) **APRIL 2013** **Sub. Code: 2090**

M.D. DEGREE EXAMINATIONS

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code : 202090

Time: Three Hours **Maximum: 100 marks**

I. Essay: **(2X10=20)**

1. Describe the development of the eyeball and its developmental anomalies.
2. Describe the aortic arches and their derivatives. Add a note on their developmental anomalies.

II. Short Questions: **(8X5=40)**

1. Genetic counseling
2. Barr body
3. Down syndrome
4. Development of thyroid gland
5. Development of pancreas
6. Notochord
7. Development of diaphragm
8. Exomphalos

III. Reasoning Out: **(4X5=20)**

Each of the following sentences have a stem and are followed by five options. Mention whether the options are TRUE of FALSE and mention the reason.

1. TOOTH

a. Dentine is mesodermal in origin
b. Ameloblasts lay down enamel
c. Ameloblasts are mesodermal in origin
d. The pulp is derived from mesenchyme
e. The first temporary tooth to erupt is upper central incisor

2. DERIVATIVES OF THE GERM LAYER

a. The epithelium of mammary gland is ectodermal in origin
b. The epithelium of uterine tube is endodermal in origin
c. The microglia is a derivative of ectoderm
d. The leptomeninges are neural crest derivatives
e. The lens is a derivative of neuroectoderm

3. GENITOURINARY SYSTEM

a. Ureteric bud gives rise to the major and minor calyces of kidney
b. Vesico urethral canal gives rise to urinary bladder
c. Appendix of epididymis is a remnant of mesonephric duct
d. Bulbourethral gland is the homologous for great vestibular gland
e. Testis develops from mesonephric duct

(PTO)

4. MODES OF INHERITANCE

a. In autosomal dominance, the trait appears in every generation without skipping
b. In autosomal recessive inheritance, parents of the proband will be nonconsanguinous
c. Cystic fibrosis is an example for autosomal dominance
d. In X-linked recessive disorder, the trait is directly transmitted from father to son
e. Vitamin D-resistant rickets is an example for X – linked dominant disorder

IV. Very Short Answers: (10X2=20)

1. Development of parathyroids
2. Derivatives of foregut
3. Derivatives of mesonephric duct in male
4. End results of fertilization
5. Name the structures constituting placental barrier
6. Name the flexures of the neural tube
7. Give two examples for X-linked recessive disorder
8. Mention any four methods of prenatal diagnosis
9. Mention two cancers resulting due to translocation
10. In which phase of cell division does crossing-over occur?

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[LE 117] **APRIL 2014** **Sub. Code: 2090**

M.D. DEGREE EXAMINATION
BRANCH XXIII – ANATOMY
PAPER II –EMBRYOLOGY AND GENETICS

Q.P. Code :202090

Time : Three Hours **Maximum : 100 marks**

I. Essay: **(2X10=20)**

1. Discuss rotation of Midgut and enumerate the associated anomalies.
2. Discuss Development of Kidney. Add a note on Polycystic kidney.

II. Short Questions: **(8X5=40)**

1. Amnion.
2. Neural crest cells and their derivatives.
3. Mutation.
4. Development of Pituitary.
5. Derivatives of the Reichert's cartilage.
6. Cri Du Chat Syndrome.
7. Lateral Plate Mesoderm.
8. Y – linked inheritance.

III. Reasoning Out: **(4X5=20)**

Each of the following questions has a stem and five options. Mention whether each option is TRUE or FALSE and reason out.

1. With regard to the Somites
    a) their number is indicative of the age of embryo.
    b) they are responsible for the development of vertebral column and body wall musculature.
    c) they appear as axial blocks.
    d) their total number corresponds to the number of vertebrae.
    e) all somites appear together.

2. With regard to the early development of embryo
    a) formation of syncytiotrophoblast is an unnecessary step with wasteful expenditure.
    b) the mesoderm layer is derived from the epiblast layer.

c) cells lose their totipotency in the first cleavage.
d) the notochordal process functions as an organizer for mesodermal differentiation.
e) amnioblasts are derivatives of the hypoblast.

3. With regard to the development of heart

   a) the position of the pericardial cavity determines the possibility of dextrocardia.
   b) the IV septum has no contribution from the bulbar septum.
   c) the bulboventricular loop formation is a sequelae of atrial compression.
   d) sinus venosus gets absorbed completely into the right atrium.
   e) Septum secundum forms a complete partition in the atrial cavity.

4. Regarding the structure of the spermatozoon

   a) neck is formed from posterior centriole.
   b) mitochondria forms spiral sheath around the axial filaments.
   c) head cap is derived from golgi apparatus.
   d) tail is about 40 microns long.
   e) end piece is part of the tail.

IV. Very Short Answers: **(10X2=20)**

1. Siamese Twins.
2. What is Hydrocephalus?
3. Polydactyly.
4. Imperforate Anus.
5. Morula.
6. Hartmann's pouch.
7. Ligamentum teres of liver.
8. Co-dominance.
9. Tracheo-oesophageal fistula.
10. Exocoelomic membrane.

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[LF 117] **OCTOBER 2014** **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code :202090

Time : Three Hours **Maximum : 100 marks**

I. Essay: **(2 x 10 = 20)**

1. Describe the development of the lungs and the anomalies associated with it.
2. Describe the development of the limbs. Add a note on the anomalies associated with it.

II. Short Questions: **(8 x 5 = 40)**

1. Neural tube defects.
2. Development of aorta.
3. Ureteric bud.
4. Development of vagina.
5. Conjoined twins.
6. Autosomal recessive inheritance.
7. Treacher Collins syndrome.
8. Second pharyngeal arch.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Cardiac abnormalities and facial defects often coexist in the same individual.
2. Gastroschisis is due to the intestinal loop failing to return to the abdominal cavity after physiological herniation.
3. Human placenta is of the haemochorial type.
4. In haemophilia, women are the carriers of the disease.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Polyhydramnios.
2. Coloboma iridis.
3. Thyroglossal cyst.
4. Pedigree chart.
5. Blastocyst.
6. Two features of fragile X syndrome.
7. Rectovaginal fistula.
8. Annular pancreas.
9. Ectopic testis.
10. Acrocentric chromosome

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[LG 117] **APRIL 2015** **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P.Code: 202090

Time: Three Hours **Maximum: 100 marks**

Answer ALL questions

I. Essay: **(2 x 10 = 20)**

1. Describe the development of the Atria of the heart.
2. Discuss the development and derivatives of Para Mesonephric duct.

II. Short Questions: **(8 x 5 = 40)**

1. Inner cell mass.
2. Primary centre of ossification.
3. Development of liver.
4. Teratogens
5. Somite and its divisions.
6. Foldings of Embryo.
7. 1st Pharyngeal arch
8. Rotation of Limbs.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. In Turner's syndrome, neck is webbed.
2. Denver's classification of chromosomes is based on their length.
3. Pituitary develops as an evagination from Rathke's pouch.
4. Mesonephric duct gives rise to Ureter.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Amnion.
2. Posterior Neuropore.
3. Lingual Swellings.
4. Centromere.
5. Super Female.
6. Septum transversum.
7. Hensen's Node.
8. Macrostomia.
9. Crown rump length.
10. Dermatome.

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[LH 117] **OCTOBER 2015** **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code : 202090

Time: Three Hours **Maximum: 100 marks**

Answer ALL questions

I. Essay: **(2 x 10 = 20)**

1. Discuss the pharyngeal pouches and the structures derived from it.
2. Describe the development of placenta. Add a note on the anomalies associated with it.

II. Short Questions: **(8 x 5 = 40)**

1. Development of stomach.
2. Maternal serum screening.
3. Turner's syndrome.
4. Cleft palate.
5. Reversed rotation of intestinal loop.
6. Tetralogy of Fallot.
7. Hypospadias.
8. Sclerotome.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. In plagiocephaly, the skull is long and narrow.
2. Splitting of the inner cell mass at the two cell stage will result in monozygotic twins which have a common amniotic and a common chorionic cavity.
3. In congenital megacolon, there is absence of parasympathetic ganglia in the bowel wall.
4. Advanced maternal age can be a causative factor for Down's syndrome.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Simian crease.
2. Philadelphia chromosome.
3. Congenital cataract.
4. Define gastrulation.
5. Lingual thyroid.
6. Derivatives of postarterial segment of midgut loop.
7. Acrosome reaction.
8. Ultimobranchial body.
9. Septum secundum defect.
10. Urachal fistula.

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[LI 117] APRIL 2016 **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code :202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 10 = 20)**

1. Describe the development of Pharyngeal Arch.
2. Discuss the development of Ear in details.

II. Short Questions: **(8 x 5 = 40)**

1. Sexlinked in herritance.
2. Axis Artery.
3. Development of Thoracic Diaphragm.
4. Extra Embryonic Coelom.
5. Development of Para thyroid Gland.
6. Tubo Tympanic recess.
7. Intermediate Mesoderm.
8. Structural aberration of Chromosome.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Increased risk of Leukaemia occurs in Turner's Syndrome.
2. Cri-du is due to Trisomy 18.
3. Prostastic Utricle is developed from Paramesonephric duct.
4. Lymphatic system is developed from Mesoderm.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Chorion.
2. Notochordal Process.
3. Tuberculum Impar.
4. Prochordal Plate.
5. Scleratome
6. Barr Body.
7. Secondary Mesoderm.
8. Chorionic villi.
9. Cell Culture.
10. Mutation.

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[LJ 117] OCTOBER 2016 **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code :202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 10 = 20)**

1. Discuss in details about the development of Face.
2. Describe the development of female Genital Organ in detail.

II. Short Questions: **(8 x 5 = 40)**

1. Development of Pituitary Gland.
2. Mesonephric Duct.
3. Neural Crest cells.
4. Karyo typing.
5. Implantation.
6. Mekel's Diverticulam.
7. Frontonasal Process.
8. Thyroglossalcyst.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Large loop of whorls present in Turners syndrome.
2. Renal segment of Inferior venacava Develops from Right supra cardinal vein.
3. Placenta is formed from Desidua Basalis.
4. Formation of Digit is by Apoptosis.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Occipital Myotomes.
2. Q – Band.
3. Thyroglossal Fistula.
4. Septum Spurium.
5. Neutralisation.
6. Heuser's membrane.
7. Mono Chorionic Biamniotic Twin.
8. Development of Vertebra.
9. Pharyngeal cleft.
10. Meckel's Diverticulum.

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[LK 117] MAY 2017 **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code :202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 10 = 20)**

1. Describe the development of thyroid gland.
2. Describe mid gut rotation.

II. Short Questions: **(8 x 5 = 40)**

1. Neural plate.
2. Second pharyngeal pouch.
3. Inter ventricular septum.
4. Maxillary process.
5. Centres of ossification.
6. Developmental composition of tympanic membrane.
7. Mesonephric duct.
8. Down`s syndrome.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Fertilisation occurs in the uterine tube.
2. The germ layer that is formed first is the ectoderm.
3. Lingual swellings arise from mandibular arch.
4. Neuro hypophysis develops as a downgrowth from Diencephalon.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Bilaminar disc.
2. Formation of notochord.
3. Anterior neuropore.
4. Myelencephalon.
5. First pharyngeal cleft.
6. Left fourth aortic arch.
7. Para meso nephric duct in male.
8. Ectopia vesicae.
9. Embryonic period.
10. Define ovulation.

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[LL 117] OCTOBER 2017 **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code :202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 10 = 20)**

1. Describe the development of neural tube.
2. Describe the formation of extra embryonic mesoderm and mention it`s derivatives.

II. Short Questions: **(8 x 5 = 40)**

1. Morula.
2. Placenta.
3. Notochord.
4. Sclerotome.
5. Inter atrial septum.
6. Turner's syndrome.
7. Development of face.
8. Denver`s classification of chromosomes.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Pancreas develops by rotation of ventral bud to dorsal bud.
2. After rotation of stomach, anterior border becomes lesser curvature.
3. Physiological hernia occurs to provide space to the developing liver.
4. Failure of closure of anterior neuropore results in anencephaly.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Implantation.
2. Barr body.
3. Karyo typing.
4. Rathke`s pouch.
5. Azygos lobe of lung.
6. Tuberculum impar.
7. Simian crease.
8. Epoophoron.
9. Patent foramen ovale.
10. Autosomes and allosomes.

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[LM 117] MAY 2018 **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code :202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe the development, ascent and rotation of kidneys and discuss their anomalies.
2. Discuss the derivatives of pharyngeal arches, pharyngeal pouches and fate of ectodermal clefts.

II. Short notes: **(10 x 5 = 50)**

1. Cleft palate.
2. Tracheoesophageal fistula.
3. Development of internal ear.
4. Paraxial mesoderm.
5. Development of pituitary.
6. Development of pancreas.
7. Karyotyping.
8. Derivatives of cloaca.
9. Amniocentesis.
10. Spermatogenesis.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Crossing over occurs in second meiotic division.
2. Right subclavian artery is derived entirely from seventh cervical intersegmental artery whereas left subclavian artery develops partly from seventh cervical intersegmental artery.
3. Second part of duodenum develops entirely from the foregut.
4. Transverse sinus lies between the arterial and venous ends of the heart tube.

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[LN 117] OCTOBER 2018 **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe the formation of atria and interatrial septum, development of right atrium and left atrium, fate of sinus venosus and a note on atrial septal defects.
2. Describe the development and derivatives of the parts of eyeball, accessory structures of eyeball and their anomalies.

II. Short notes: **(10 x 5 = 50)**

1. Neural crest cells.
2. Cri du chat syndrome.
3. Genetic counselling.
4. Barr body.
5. Notochord.
6. Development of thyroid gland.
7. Yolk sac.
8. Invitro fertilization.
9. Development of tongue.
10. Intermediate mesoderm.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Human placenta is of hemochorial type.
2. Superior parathyroid develops from endoderm of fourth pharyngeal pouch and inferior parathyroid develops from endoderm of third pharyngeal pouch.
3. The vertebra is an intersegmental structure made up from portions of two somites.
4. Spleen develops from the foregut in the ventral mesogastrium.

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[LO 117] MAY 2019 **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Write an essay about the development of the kidney. Add a note on its anomalies.
2. Describe the development of right ventricle. Add a note on its congenital Anomalies.

II. Short notes: **(10 x 5 = 50)**

1. Mutation.
2. Gene therapy.
3. Formation and derivatives of Branchial apparatus.
4. Hox genes.
5. Spermatogenesis.
6. Stages of foetal development.
7. Development of spinal cord.
8. Klinefelter's syndrome.
9. Development of tooth.
10. Chromosomal inversion.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. The syncytiotrophoblast acts as placental barrier.
2. Mesonephric ducts give rise to uterine tubes.
3. A small part at the tip of male urethra is derived from ectoderm.
4. The circumvalate papillae is supplied by lingual nerve.

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[LP 117] OCTOBER 2019 **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe the development of the lungs along with its associated anomalies.
2. Describe the development of the testis and the male accessory organs of reproduction. Add a note on the anomalies associated with it.

II. Short notes: **(10 x 5 = 50)**

1. Development of superior vena cava.
2. Inversion.
3. Ectopia vesicae.
4. Development of stomach.
5. Nondisjunction.
6. Development of adrenal gland.
7. Branchial cyst.
8. Congenital megacolon.
9. Spina bifida occulta.
10. Rectovaginal fistula.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Prostatic urethra develops only from the caudal part of the vesicourethral canal.
2. Mesoderm and endoderm contribute to the formation of vagina.
3. Annular pancreas causes constriction of the duodenum.
4. The definitive endoderm is formed from cells of the hypoblast.

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[LQ 117] AUGUST 2020 **Sub. Code: 2090**

(MAY 2020 SESSION)

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe in detail about sexual differentiation and its associated anomalies
2. Describe in detail about the development of placenta along with its anomalies

II. Short notes: **(10 x 5 = 50)**

1. Chromosomes
2. Genetic counselling
3. Vitello intestinal duct
4. Oncogenes
5. Assisted reproduction
6. Hare lip
7. Development of duodenum
8. Cervical sinus
9. Spermateleosis
10. Development of vertebra

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Trigone of urinary bladder is endodermal in origin
2. Adenohypophysis is neuroectodermal in origin
3. Diaphragmatic pleura is derived from splachnopleure
4. Tympanic membrane is mesodermal in origin

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[LS 117] NOVEMBER 2020 **Sub. Code: 2090**

(OCTOBER 2020 SESSION)

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe in detail about rotation of midgut and its associated anomalies
2. Describe in detail about the development of female gonad and accessory organs of reproduction in female along with its anomalies

II. Short notes: **(10 x 5 = 50)**

1. Karyotyping
2. Prenatal diagnosis
3. Post natal changes in foetal circulation
4. Mutagens
5. Axis artery
6. Sex linked Inheritance
7. Development of diaphragm
8. Inter ventricular septal defect
9. Develoment of ear
10. Neural crest cells

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Excretory part of kidney develops from mesonephros
2. Second part of duodenum is supplied by branch of coeliac trunk
3. Muscles are mesodermal in origin
4. Ultimobranchial body is derived from 5^{th} pharyngeal arch

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[MD 0721] JULY 2021 **Sub. Code: 2090**

(MAY 2021 SESSION)

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe the development of coelomic cavities. Add a note on the development of diaphragm and its congenital anomalies.
2. Describe the development of axial skeleton and congenital anomalies associated with it.

II. Short notes: **(10 x 5 = 50)**

1. Mosaics and chimeras with examples.
2. Synchrony between ovarian and uterine cycle.
3. Gene families in early embryogenesis.
4. Development of telencephalon.
5. Development of paramesonephric duct and its derivatives.
6. Development of nasal cavity and palate.
7. Prenatal diagnosis.
8. Extraembryonic foetal membranes.
9. Development of cardiac loop and its defects.
10. Development of inner ear.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Ontogeny repeats phylogeny.
2. Dorsal aorta is encircled by a renal collar of anastomotic arteries.
3. Anal canal is dual in origin.
4. Left recurrent laryngeal nerve loops upwards around left subclavian artery.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MD 1121] NOVEMBER 2021 **Sub. Code: 2090**

(OCTOBER 2021 SESSION)

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe the changes in the fourth to eighth week of development and anomalies associated with it.
2. Describe the development of appendicular skeleton and congenital anomalies associated with it.

II. Short notes: **(10 x 5 = 50)**

1. Karyotyping and Lyon's hypothesis.
2. Development of Rhombencephalon.
3. Development of eye and lacrimal apparatus.
4. Molecular regulation of embryonic axes.
5. Development of mesonephric duct and its derivatives.
6. Oogenesis.
7. Twinning.
8. Development of mouth cavity and its derivatives.
9. Artificial reproductive techniques.
10. Defects in bulbus cordis and truncus arteriosus.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Male and female external genitalia have homologies.
2. Liver is dual in origin.
3. Right recurrent laryngeal nerve hooks around the caudal surface of Arch of Aorta.
4. Left gonadal vein opens directly into Inferior vena cava.

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THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 0522] **MAY 2022** **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Write in detail about development of Uterus.
2. Write an essay about development of Ear.

II. Short notes: **(10 x 5 = 50)**

1. Descent of Testis.
2. Pedigree chart.
3. Cloning.
4. Ventral meso gastrium.
5. Development of male urethra.
6. Cleft palate.
7. Gene therapy.
8. Amnion.
9. Development of inter arterial septum.
10. Meiosis.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Meso nephric duct gives rise to seminal vesicles.
2. Centromere is a specialized DNA sequence in a chromosome that holds two daughter chromatids.
3. During gastrulation and neurulation the Hensens node undergoes caudal to rostral movement as embryo elongates.
4. In Spermatozoa the tail is about 50um in length.

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THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 1022] **OCTOBER 2022** **Sub. Code: 2090**

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe the development of eyeball and the developmental anomalies associated with it.
2. Describe the formation and fate of endodermal cloaca and mention the congenital anomalies.

II. Short notes: **(10 x 5 = 50)**

1. Primitive streak.
2. Circulatory changes after birth.
3. Maternal Serum Screening.
4. Laterality and heart defects.
5. Development of Limbs.
6. Spermatogenesis.
7. Development and derivatives of genital ducts in Males.
8. Development of Face.
9. Differentiation of Neural tube.
10. Gene Transcription.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Women with autoimmune diseases like Multiple sclerosis and Rheumatoid arthritis show improvement during pregnancy.
2. Gastroschisis is a congenital anomaly due to failure of the bowel to return to body cavity and is associated with severe malformations in the foetus.
3. Premature closure of coronal sutures in foetus results in Scaphocephaly.
4. Sinus tubercle is formed from mesonephric ducts.

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THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 0723] **JULY 2023** **Sub. Code: 2090**

(MAY 2023 EXAM SESSION)

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Write an essay on the Aortic arches and the associated anomalies.
2. Describe the development of the Kidneys and anomalies.

II. Short notes: **(10 x 5 = 50)**

1. Development of portal vein.
2. Axis arteries of upper and lower limbs.
3. Development of ventricles of heart.
4. Oogenesis
5. Regulator genes.
6. Placental barrier
7. Derivatives of paraxial mesoderm.
8. Suprarenal gland development.
9. Super female.
10. Twinning.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Genes occupy the whole length of the chromosomes including the primary and secondary constrictions.
2. The rhombic lip is the dorsolateral expansion of basal lamina of metencephalon.
3. The substantia propria of the cornea is developed from the surface ectoderm.
4. The first commissure to appear is the corpus callosum in the 3rd month of intrauterine life.

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THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 1223] **DECEMBER 2023** **Sub. Code: 2090**

(OCTOBER 2023 EXAM SESSION)

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER II – EMBRYOLOGY AND GENETICS

Q.P. Code: 202090

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Write in detail about the development of placenta and its anomalies.
2. Describe the development of the vertebral column, ribs and sternum.

II. Short notes: **(10 x 5 = 50)**

1. Fate of the neural crest cells.
2. Foetal circulation.
3. Fertilization and its effects.
4. Sex chromosomal abnormalities.
5. Development of liver.
6. Renal anomalies and their embryological basis.
7. Hox genes.
8. Karyotyping.
9. Rotation of midgut.
10. Development of prostate.

III. Reasoning Out: **(4 x 5 = 20)**

State whether each of the following statement is TRUE or FALSE and reason out.

1. Failure of closure of choroid fissure of the optic stalk causes cyclopia.
2. In Oogenesis, the second meiotic division is completed at puberty.
3. Ductus caroticus is the portion of the dorsal aorta between the 4^{th} and 5^{th} aortic arches.
4. The posterior neuropore closes around the 20 somite stage, before the anterior neuropore closure.

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