

**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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