**Biochemistry Research topics**

1. Different levels of protein structure.

2. Collagen

3. Immunoglobulins.

4.Gene mutations

5.DNA amplification techniques

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**Anatomy Research topics**

Research 1

Give a detailed account of each of the following :

1. Anatomy of the axilla.

2. Anatomy of median nerve.

3. Surface anatomy and relations of left lung.

4. Anatomy of coronary arteries.

5. Boundaries and contents of femoral triangle.

6. Anatomy of sciatic nerve.

7. Anatomy of profunda femoris artery.

8. Characters and Classification of synovial joint.

9. Mesodermal derivatives of pharyngeal arches.

10. Causes and results of embryonic folding.

Research 2

 Give a detailed account of each of the following :

1. Anatomy of brachial plexus.

2. Anatomy of rotator cuff muscles.

3. Anastomosis around elbow joint.

4. Venous drainage of the heart.

5. Anatomy of the internal mammary artery.

6. Anatomy of gluteal muscles.

7. Anatomy of popliteal fossa.

8. Anatomy of ankle joint.

9. Forms of skeletal muscles.

10. Morphology and abnormality of the placenta.

Research 3:

Give a detailed account of each of the following :

1. Anatomy of shoulder joint.

2. Boundaries and contents of cubital fossa.

3. Anatomy of radial artery.

4. Anatomy of the pleura.

5. Anatomy of coronary sinus.

6. Anatomy of adductor muscles of thigh.

7. Anatomy of knee joint.

8. Types of anastomoses.

9. Derivatives of ectoderm.

10. Morphology and abnormality of umbilical cord.

Research 4

Give a detailed account of each of the following :

1. Lymph drainage of upper limb.

2. Boundaries and contents of carpal tunnel.

3. Nerve supply of the hand.

4. Anatomy of the pericadium.

5. Surface anatomy and relation of right lung.

6. Anatomy of adductor major muscle.

7. Cutaneous nerve supply of the lower limb.

8. Types of bones.

9. Characters, sources, function and abnormality of Amniotic fluid.

10. Structures and function of placental barrier.

Research 5

Give a detailed account of each of the following :

1. Anatomy of ulnar nerve.

2. Anatomy of radial artery.

3. Anatomy of wrist joint.

4. Anatomy of intercostal nerves.

5. Relations of arch of Aorta.

6. Anatomy of calf muscles.

7. Anatomy of arches of the foot.

8. Characters of veins, arteries and lymph vessels.

9. Derivatives of intra embryonic mesoderm.

10. Morphology, components and abnormality of placenta.

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**Histology Research topics**

1. **Mitochondria in health and disease with special reference to its histological structure**
2. **Red blood corpuscles with special reference to their adaptation to perform function**
3. **How lymph nodes deal with different antigens with reference to its histological structure**
4. **Histological structure of peripheral nerve and the possible role of neural stem cells in its regeneration**

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**Physiology Research topics**

**First research topic**

1. **Give an account of:**
2. The physiological anatomy of myoneural junction, describing in details the steps and properties of neuromuscular transmission.
3. Mechanism of blood clotting.
4. Excitability changes that occur in nerves when stimulated.
5. The various action potentials that occur in the heart.
6. Regulation of arteriolar diameter.
7. Chemical regulation of breathing.

**A 30 years old athlete was doing his daily training in the gym. After 15 min of training his doctor noticed that he has sweating, pallor, tachypnea and tachycardia.**

1. What autonomic nervous system is responsible for these manifestations?
2. Discuss in details other manifestations of this system in the present case.

**Second research topic**

1. **Give an account of:**
2. The steps of excitation- contraction coupling, and the factors affecting skeletal muscle contractions with illustrations whenever possible.
3. Interaction between the 2 systems of blood clotting.
4. Events of the action potential.
5. Phases of cardiac cycle.
6. Mechanism of regulation of arterial blood pressure.
7. Nervous regulation of breathing

**33 years old female patient, will exhibit cholecystectomy. On entering the surgical unit she develops rapid heart rate (tachycardia), respiratory rate (tachypnea) and increased blood pressure.**

1. Explain in details the cause of tachycardia and tachypnea in this situation?
2. Discus the sympathetic supply to the abdomen and pelvis?

**Third research topic**

1. **Give an account of:**
2. Different types of muscle contractions and factors affecting contractions with illustrations whenever possible.
3. Mechanisms of hemostasis. How can they be tested.
4. Ionic basis of the action potential.
5. Mechanism of cardiac reserve and their limits.
6. Factors that maintain the systemic arterial blood pressure.
7. Hypoxia, types, causes of each type and types of hypoxia associated with cyanosis.
8. **On the first day in the Anatomy lab for new Medical student, some students were nervous, irritable and tachycardic, the demonstrator of the lab tried to relax them. But once the body was exposed one student felt down with a vasovagal attack.**
9. From your study on autonomic nervous system explain these situations.
10. What is the relationship of the adrenal medulla to the autonomic nervous system?
11. What hormones are secreted by a pheochromocytoma?

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