List of Essay Questions

1. **Lecture 18.** A patient complains of shoulder pain and difficulty rotating their arm. An ultrasound reveals edema within the spinoglenoid notch. **Describe the normal scapular and shoulder anastomoses, including all arterial branches involved and their relationship to any ligaments, scapula borders, and intermuscular spaces. If the axillary artery is ligated immediately distal to the thyrocervical trunk, would edema within the spinoglenoid notch affect collateral circulation? Also, include a brief (2-3 sentences) explanation for why edema within the spinoglenoid notch might result in weak external/lateral rotation of the shoulder. (R. Saint-Fort)**
2. **Lecture 18.** A 29-year-old police officer receives a gunshot wound to the right shoulder. The bullet causes instability of the glenohumeral joint. **Describe the supportive anatomical structures that aid to stabilize and reinforce the shoulder joint; including fibrous tissue, membranes, ligaments, muscles, innervation, function/action, and relationships. Also, discuss the muscles that assist in upper limb abduction from 0 to 180 degrees and their range of movement. (R. Saint-Fort)**
3. **Lecture 19. Review the anatomy of a typical spinal nerve. (M. Johnson)**
4. **Lecture 20.** The median cubital vein is frequently used for venipuncture. **Describe the superficial venous drainage of the upper limb. Include major vessels, their origins, pathways, and vessels they drain into. Explain why the median cubital vein is a preferred vessel for venipuncture. (M. Johnson)**
5. **Lecture 20.** A 56-year old patient has pain at the base of the neck and shoulder region. This pain is exacerbated when you place the patient in Trendelenburg position (body is supine on a 15-30 degree incline with the feet above the head) and apply pressure to the upper right quadrant. **Explain "referred pain" and why visceral and somatic pain can present in a region other than the origin of the painful stimulus. Describe the functional components involved in this phenomenon and why the brain misinterprets the source of this incoming information, specifically. (M. Johnson)**
6. **Lecture 20.** The palmar cutaneous branch of the median nerve is useful in distinguishing between proximal and distal median nerve neuropathies. **Explain, in detail, two regions where the median nerve can be compressed. Indicate the motor and sensory deficits associated with compression at each region and the relevant branches of the median nerve affected. (M. Johnson)**
7. **Lecture 21.** A thirty one year old female was diagnosed with invasive breast cancer. **Account for the spread of breast cancer by way of contiguity (spread to adjacent tissue) to the lung and lymphogenous spread to other body regions. How are internal structures of the breast impacted by a cancerous mass. (C. Werner)**
8. **Lecture 22. Discuss the anatomy of the axilla. Include contents, relationships, boundaries, fascial specializations, vasculature, innervation, lymphatics, muscles and movements. (Dr. Evey)**
9. **Lecture 22. Discuss the path of the posterior cord of the brachial plexus and its branches within the axilla, shoulder, and proximal upper extremity. (Dr. Evey)**
10. **Lecture 23.** A 21 year old man has weakened elbow extension, wrist drop and paresthesia of the posterior arm, lateral arm, dorsal forearm and hand. He reports having one too many to drink and that he fell asleep with his arm hanging over the back of a chair. He is diagnosed with Saturday night palsy. **Discuss the anatomy of the radial nerve with regard to Saturday night palsy. Include structures associated with the pathway of the radial nerve and its branches through the upper limb, muscles, cutaneous branches. What classification of nerve injury would you give this injury and approximately how long will it be until the patient recovers? (M. Pearce-Clawson)**
11. **Lecture 24.** The biceps brachii muscle is the most powerful supinator. **Discuss the anatomy of the anterior compartment of the arm, including boundaries, contents, musculature, vascular supply, innervation, lymphatics and relationships. (M. Johnson)**
12. **Lecture 24.** A 27-year old patient suffers a humeral shaft fracture at the radial groove. **Discuss the anatomy of the posterior compartment of the arm, including boundaries, contents, musculature, vascular supply, innervation, lymphatics and relationships. Differentiate between motor deficits of posterior arm and posterior forearm musculature relative to branching of the radial nerve superior and inferior to the radial groove. (M. Johnson)**
13. **Lecture 24.** The coracoid process of the scapula provides an attachment site for several structures. **Discuss the anatomy of the coracoid process, including muscle and ligamentous structures, and relationships. (M. Johnson)**

14. **Lecture 25. Discuss the boundaries and contents of the cubital fossa. Include fascial specializations, relationships, vasculature, innervation, lymphatics, and clinical significance. (N. Morales)**
15. **Lecture 26.** A 54-year-old woman presents with atrophy of the thenar eminence and a lack of sensation on the palmar surface of the radial 3.5 digits. Testing confirms carpal tunnel syndrome with a positive Phalen's test and Tinel's test. **Describe the boundaries and contents of the carpal tunnel. Account for the function and innervation of the muscles whose tendons pass through the carpal tunnel. (G. Francis and Dr. Evey)**
16. **Lecture 26.** A patient enters the Emergency Department with a knife wound superior to the cubital fossa. The median nerve is lacerated. **Describe the effects of injury to the median nerve at a location proximal to the cubital fossa. Account for the muscles affected, weakened actions, and position of the fingers after the patient is asked to make a fist. (G. Kincheloe and Dr. Evey)**
17. **Lecture 26. Discuss the anatomy of the flexor region of the forearm, including boundaries, contents, musculature, vascular supply, innervation, lymphatics and relationships. (Dr. Evey)**
18. **Lecture 27.** 34-yr-old male presents to the clinic with diminished sensation and paresthesia of the medial 1.5 digits. The patient recently participated in a long distance cycling race. **Describe the anatomy of Guyon's canal. What motor deficits are caused by compression of Guyon's canal? Account for the named branches of the nerve involved and why the patient would be able to perceive sensation from the majority of the dorsum of the hand, but have diminished sensation for the nailbeds of the medial 1.5 digits. (G. Francis and Dr. Evey)**
19. **Lecture 27. Discuss the anatomy of the palm; including boundaries, contents, musculature, vascular supply, innervation, lymphatics and relationships. (Dr. Evey)**
20. **Lecture 27. Discuss the anatomy of the thenar eminence; including boundaries, contents, musculature and movements, vascular supply, innervation, lymphatics and relationships. (Dr. Evey)**
21. **Lecture 28. Discuss the anatomy of the anatomical snuffbox; including boundaries, contents, musculature, vascular supply, innervation, lymphatics and relationships. (Dr. Evey)**
22. **Lecture 28. Discuss the anatomy of the extensor region of the forearm; including boundaries, contents, musculature, vascular supply, innervation, lymphatics and relationships. (Dr. Evey)**
23. **Lecture 28. Discuss the anatomy of the dorsum of the hand; including boundaries, contents, musculature, vascular supply, innervation, lymphatics and relationships. (Dr. Evey)**
24. **Lecture 29.** A shoulder separation and a shoulder dislocation occur at different joints. **Review the anatomy of the acromioclavicular joint. Include bones, articulations, ligaments, capsules, cavities, movements and limitations of movement, and relationships. (M. Johnson)**
25. **Lecture 29.** The shoulder joint has extreme mobility paired with inherent instability. **Review the anatomy of the glenohumeral joint. Include bones, articulations, ligaments, capsules, cavities, contents, muscles, movements and limitations of movements, vasculature, lymphatic drainage, innervation, and relationships. (M. Johnson)**
26. **Lecture 29.** The elbow joint consists of three joints: the humeroradial, humeroulnar, and proximal radioulnar joints. **Review the anatomy of the elbow joint. Include bones, articulations, ligaments, capsules, movements and limitations of movements. Relate the anatomy of the medial ulnar collateral ligament to Tommy John surgery. (M. Johnson)**
27. **Lecture 30.** A 36-year-old receptionist has loss of sensation on the lateral side of her hand and decreased functionality of her hand. She has an ape hand deformity. Carpal tunnel syndrome is confirmed. **Explain the anatomy associated with the ape hand deformity. In your answer include the nerve(s) affected, areas of sensory deficits, muscles affected, and the signs that were present indicating the ape hand deformity. (M. Pearce-Clawson)**
28. **Lecture 31.** Movement of the thoracic wall is required for respiration. **Discuss the anatomical basis for expansion along the anterior/posterior axis of the thorax known as pump handle movement. Also discuss the anatomical basis of expansion along the transverse axis of the thorax that is known as bucket handle movement. (N. Morales)**
29. **Lecture 31. Discuss the anatomy of the anterior thoracic wall. Include structures, relationships, vasculature, innervation (both motor and sensory), lymphatics, and clinical significance. (N. Morales)**

30. **Lecture 31. Describe the structures, functions, contents, relationships, and clinical significance of the intercostal spaces. (N. Morales)**
31. **Lecture 32. Discuss the anatomy of the lungs, include relationships, stabilization, vasculature, innervation, lymphatic drainage, and clinical significance. (N. Morales)**
32. **Lecture 32.** Enlarged bronchopulmonary lymph nodes may lead to a variety of symptoms known as middle lobe syndrome. **Discuss the anatomy of the hilum of the right lung and discuss the symptoms that may result from enlargement of the bronchopulmonary lymph nodes. (N. Morales)**
33. **Lecture 33.** A 35-year-old male presents to your clinic with cardiac tamponade after a car accident and you perform pericardiocentesis at the 5th-6th intercostal space. **Discuss the anatomy of the pericardium, including attachments, stabilization, sinuses, relevant relationships, innervation, and blood supply. Describe the placement of the needle and the layers pierced during the pericardiocentesis procedure. (N. Yoshioka)**
34. **Lecture 33.** A 65-year-old male presents to your clinic complaining of severe chest pain that radiates to his medial arm. He is diagnosed with a myocardial infarction and treated with coronary artery bypass surgery. During the surgery, clamping of the aorta and pulmonary trunk is performed at the transverse pericardial sinus. **Describe the development of the pericardial cavity and pericardial sinuses. Include boundaries of the middle mediastinum and relevant developmental events, including germ layer derivatives. Explain the innervation to the layers of serous and fibrous pericardium and how the descent of the heart during development contributes to the location of these nerves in the thoracic cavity. Explain the location of the patient's referred pain. (N. Yoshioka)**
35. **Lecture 34.** A 63-year-old man has heart arrhythmia. An angiogram shows an occlusion of the proximal right coronary artery. **Why would this occlusion cause arrhythmia? Discuss the anatomy and relationships of the right coronary artery and its branches as well as the complementary venous drainage. Include mention of anatomical variances. (G. Kincheloe)**
36. **Lecture 34.** A patient has a partial occlusion of the anterior interventricular artery (left anterior descending artery). **Discuss the anatomy and relationships of the left coronary artery and branches as well as the complementary venous drainage. Why is an occlusion in this artery especially dangerous and what potential surgical solutions can be used as treatment? Include mention of anatomical variances. (G. Kincheloe)**
37. **Lecture 35.** A 72-year-old male presents with shortness of breath and chest pain. Transesophageal echocardiogram reveals severe aortic valve stenosis. **Describe the anatomy of the aortic semilunar valve and compare it to the other valves of the heart. Include locations, function, and structures associated with each valve of the heart. (G. Francis)**
38. **Lecture 36. Describe the course of the esophagus in the thoracic cavity. Discuss four areas of constrictions of the esophagus in the thorax, include vasculature, nerves, and relationships. (C. Werner and D. Mehay)**
39. **Lecture 36.** A group of PA students discover a tumor in the posterior mediastinum. **Discuss structures, nerves, viscera, lymphatics, vasculature, relationships and boundaries of the posterior mediastinum. (C. Werner and D. Mehay)**
40. **Lecture 37. Describe the pathways of sympathetic and parasympathetic innervation to the thoracic viscera. (J. Radler)**
41. **Lecture 37. Explain the anatomical basis of referred pain from the heart. (J. Radler)**