



**SBA IN APPLIED BASIC SCIENCE
, ANATOMY ,
UPPER LIMB PRACTICE PAPERS . MRCS
PART A , IRFAN HALIM.**

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- 1) Thoracic outlet syndrome classically present with all of the following EXCEPT:**
- a. Neck and shoulder pain.
 - b. Digital gangrene owing to ischemia.
 - c. Weakened radial pulse on arm elevation.
 - d. Wasting of the thenar eminence.
 - e. Paraesthesia along the ulnar border of the forearm.



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○ Answer: d . commonly affected roots in thoracic outlet syndrome include C8 & T1 resulting in wasting of hypothenar muscles as well as medial forearm.



2- Which of the following is true of the brachioradialis - muscle?

- a. It originates from the lateral aspect of the supracondylar ridge of the radius.
- b. It is the main muscle involved in the supinator reflex.
- c. It attaches to the ulnar styloid process.
- d. It is supplied by the deep branch of the radial nerve.
- e. It may often contain a nerve supply from a branch of the musculotaneous nerve.



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 - e. It may often contain a nerve supply from a branch of the musculotaneous nerve.
- Answer: b. it arises from the upper two-thirds of the lateral supracondylar ridge of the humerus and inserts into the radial styloid process. It is supplied by the main radial nerve and is involve in flexion of the elbow in semi-prone position.



3-A young boy has been stabbed in the right forearm, he now has difficulty in flexing his wrist and pronating the forearm along with loss of sensation over the lateral fingers on the palmar surface. Which of the following nerves has been injured?

- a. Deep branch of radial nerve.
- b. Median nerve.
- c. Ulnar nerve.
- d. Superficial branch of radial nerve.
- e. Median palmar nerve.



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- Answer: b. damage to median nerve at the anterior cubital fossa along with the brachial artery, nerve damage at the elbow result in loss of pronation, weakness of wrist flexion with deviation, and loss of sensation on the lateral palm and radial three and a half digits.



4- The characteristic features of a Colles' fracture include the following Except:

- a. Dinner fork deformity.
- b. Radial displacement .
- c. Occurring within 2.5 cm of wrist joint.
- d. Subluxation of carpus.
- e. Angulation in opposite direction to Smith's fracture.



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- e. Angulation in opposite direction to Smith's fracture.
 - **Answer: d. there is commonly an associated ulnar styloid fracture. Carpal subluxation usually occurs when there is a Barton's fracture (intra-articular fracture through the dorsal or volar lip of the distal radius). Smith's fracture is an extra-articular fracture with volar displacement.**



5- With regard to humeral supracondylar fractures:

- a. The most commonly occur in the elderly population.
- b. The distal fragment is usually tilted forwards.
- c. They should always be observed in theatre during daylight hours.
- d. They require vigilant observation for signs of brachial artery damage.
- e. Reduction is helped by elbow extension with pressure applied behind the olecranon.



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- **Answer: d. supracondylar fractures are commoner in children. Falling onto an outstretched hand hyperextends the child's elbow leading the distal fragment to tilt posteriorly. The anteriorly tilted proximal fragment can damage the brachial artery. Such cases of supracondylar fractures should be taken to theatre as soon as possible as delay lead to excessive swelling and difficulty in reduction. Reduction is performed by flexing the elbow and applying pressure behind the olecranon.**



6- A 25 –years –old right handed young woman is brought into the Emergency Department after a traumatic amputation of her right middle finger less than 1 hour ago. The finger has been preserved on ice and a decision is taken to re-implant the finger under general anaesthetic. The correct order in which the structures will be re-anastomosed (excluding the finger tendons) includes which of the following?

- a. Artery, vein, bone, nerve, skin.
- b. Artery, bone, vein, nerve, skin.
- c. Bone, artery, vein, nerve, skin.
- d. Bone, vein, artery, nerve, skin.
- e. Vein, artery, bone, nerve, skin.



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- b. Artery,bone,vein,nerve,skin.
- c. Bone,artery,vein,nerve,skin.
- d. Bone,vein,artery,nerve,skin.
- e. Vein,artery,bone,nerve,skin.



7- A 50-year-old female has a Colle's fracture manipulated in theatre, followed by application of a full below elbow cast. One hour after being on the ward with her arm elevated, she starts to complain of paraesthesia in the index and middle fingers along with wrist pain. The correct initial treatment should be:

- a. Observe for another hour to see if the symptoms settle.
- b. Split the cast and lower the arm.
- c. Take her back to theatre for a remanipulation.
- d. Split the cast and keep the arm elevated.
- e. Perform an urgent carpal tunnel decompression.



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- **Answer: d. the commonest cause for pain after a manipulation is because of swelling and a tight cast. It is important to keep the limb elevated to reduce the swelling and split the cast. Delay can lead to limb ischaemia and muscle damage resulting in ischaemic contractures. If a patient undergoes an open reduction and there are median nerve symptoms at presentation , then a carpal tunnel decompression can be done at the same time.**



8- A 67 –year-old man who is an in-patient on your ward undergoes a thyroidectomy and right radical neck dissection. On the first post-operative day complains that he is unable to initiate shoulder abduction. Which one of the following nerves is most likely to be injured:

- a. Axillary nerve.
- b. Suprascapular nerve.
- c. Dorsal scapular nerve.
- d. Lateral pectoral nerve.
- e. Thoracodorsal nerve.



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Answer: b. suprascapular nerve injury is a rare clinical syndrome, but may arise in volleyball players and those undergoing radical neck dissection for malignancy. The supraspinatus and infraspinatus muscle are affected and initiation of abduction is weakened.



9- A 23 –year-old male sustains a stab wound to his cubital fossa during a fight. You suspect that there may be damage to the median nerve. All of the following muscles would lose their motor innervations Except:

- a. Palmaris longus.
- b. Abductor pollicis brevis.
- c. Pronator teres.
- d. Adductor pollicis.
- e. Opponens pollicis.



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- e. **Opponens pollicis.**

Answer: d. adductor pollicis muscle is supplied by the ulnar nerve as well as most intrinsic muscle of the hand. Within the hand , the median nerve supplies the LOAF muscles, which include : lateral two lumbricales, opponens pollicis, abductor pollicis brevis and flexor pollicis brevis.



10- All of the following arteries are named direct branches of the axillary artery Except:

- a. Superior thoracic artery.
- b. Lateral thoracic artery.
- c. Suprascapular artery.
- d. Subscapular artery.
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○ Answer: c. suprascapular artery is a branch of the thyrocervical trunk of the Subclavian artery. All of the others listed are direct branches of the axillary artery in addition to the anterior and posterior circumflex humoral arteries from the third part.



11- Innervations to the muscle of the back originate from:

- a. Dorsal primary rami.
- b. Ventral primary rami.
- c. Grey rami communicantes.
- d. White rami communicantes.
- e. Lateral perforating branches of the ventral primary rami.



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- **Answer: a. the dorsal primary rami supply the deep muscles of the back such as erector spinae. Rami communicantes are involved in autonomic communications and are classed as grey (unmyelinated) or white (myelinated). Ventral rami supply all other muscles anteriorly and make up the remaining nerve root plexuses.**



12- All of the following muscles are supplied by the posterior interosseous branch of the radial nerve ,Except:

- a. Extensor carpi radialis longus.
- b. Extensor digitorum.
- c. Extensor digiti minimi.
- d. Abductor pollicis longus.
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- **Answer: a. the posterior interosseous nerve is the terminal motor branch of the radial nerve and supplies the extensor muscles from the common extensor origin distally. The brachioradialis and extensor carpi radialis longus muscles directly supplied by the radial nerve and arise from the upper two-thirds and lower one-third of the lateral supracondylar ridge of the humerus, respectively.**



13- Which of the following statements regarding the triquetral bone is correct?

- a. The degree of contact with the radioulnar articular disc is maximal in full adduction of the wrist joint.
- b. It lies just laterally to the lunate bone.
- c. It forms part of the radiocarpal joint in the wrist.
- d. The hamate lies just anterolaterally to the triquetral.
- e. During forced hyperextension of the wrist joint, anterior dislocation of the triquetral can cause carpal tunnel syndrome.



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 - e. During forced hyperextension of the wrist joint, anterior dislocation of the triquetral can cause carpal tunnel syndrome.
- - **Answer: a. the triquetral bone participates in the ulnocarpal joint and articulates with the triangular articular disc proximally. The pisiform bone is related anteromedially and hamate bone distally. During forced hyperextension of the wrist joint, anterior dislocation of the lunate bone can cause a carpal tunnel syndrome.**



14- The following brachial plexus injuries would all give rise to the accompanying deficits Except:

- a. Radial nerve lesion – wrist drop.
- b. Ulnar nerve lesion – claw deformity.
- c. Axillary nerve injury – increase shoulder patch.
- d. Median nerve palsy – weakened thumb movements + loss of sensation to lateral palm.
- e. Thoracodorsal nerve injury – winged scapula.



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- Answer: e. the thoracodorsal nerve supplies the latissimus dorsi muscle, which one of the major adductors of the shoulder joint as well as an extensor and medial rotator. A winged scapula would result from an injury to the long thoracic nerve of Bell, which arise from the root of C5,6 & 7 of the brachial plexus. Both of these nerves are commonly encountered in axillary dissection procedures and can be injured here as well.



15- The superficial radial nerve:

- a. Runs between the brachioradialis and extensor carpi radialis longus.
- b. Runs between the brachialis and brachioradialis.
- c. Is at a high risk of injury during the posterior approach to the forearm.
- d. Supplies most of muscles in the posterior compartment of the forearm.
- e. Is difficult to see during surgery.



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 -
 - **Answer:** a. the radial nerve enters the forearm anterior to the lateral epicondyle, runs between the brachialis and brachioradialis and divides into the superficial radial and posterior interosseous nerve (PIN). The PIN splits the supinator (site of damage during retraction of the muscle) and supplies all of the extensor muscles except the brachioradialis, extensor carpi radialis brevis and extensor carpi radialis longus. The superficial radial nerve passes to the dorsal radial surface of the hand in the distal third of the forearm by passing between the brachioradialis and extensor carpi radialis longus. It can be visualized during the anterior approach to the forearm.



16- Extensor compartment II of the wrist contains:

- a. Abductor pollicis longus
- b. Extensor pollicis brevis.
- c. Extensor carpi radialis.
- d. Extensor pollicis longus.
- e. Extensor digitorum.



16- Extensor compartment II of the wrist contains:

- a. Abductor pollicis longus
- b. Extensor pollicis brevis.
- c. Extensor carpi radialis.
- d. Extensor pollicis longus.
- e. Extensor digitorum.



○ **Answer:** c. the content of the extensor compartments are:

- i. Abductor pollicis longus and extensor pollicis brevis.
- ii. Extensor carpi radialis.
- iii. Extensor pollicis longus
- iv. Extensor digitorum and extensor indicis
- v. Extensor digiti minimi
- vi. Extensor carpi ulnaris



17- The quadrilateral space:

- a. Is bounded inferiorly by teres minor.
- b. Is bounded inferiorly by subscapularis.
- c. Is bounded laterally by the long head of triceps.
- d. Is bounded inferiorly by teres major.
- e. Contains the radial nerve.



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- d. Is bounded inferiorly by teres major.
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○ Answer: d. the boundaries of the quadrilateral space are:

- Superiorly- subscapularis.
- Inferiorly – teres major.
- Medially –long head of triceps.
- Laterally-medial shaft of humerus.

It contains: axillary nerve & posterior circumflex humeral artery and vein.



18- The carpal tunnel does NOT contain:

- a. Flexor digitorum superficialis.
- b. Flexor digitorum profundus.
- c. Median nerve.
- d. Flexor pollicis longus.
- e. Flexor carpi ulnaris.



18- The carpal tunnel does NOT contain:

- a. Flexor digitorum superficialis.
- b. Flexor digitorum profundus.
- c. Median nerve.
- d. Flexor pollicis longus.
- e. Flexor carpi ulnaris.



- Answer: e. the content of the carpal tunnel are: median nerve, flexor digitorum superficialis, flexor digitorum profundus, flexor pollicis longus and flexor carpi radialis.



19- Which statement is true of the brachial plexus:

- a. The median cord continues as the musculocutaneous nerve.
- b. The posterior cord continues as the axillary nerve.
- c. The lateral cord continues as the axillary nerve.
- d. The nerve to subclavius is a branch of the C8 nerve root.
- e. The suprascapular nerve is a branch of the lower trunk.



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- **Answer: b. the lateral cord continues as the musculocutaneous nerve. The medial cord continues as the ulnar nerve. The posterior cord continues as the radial nerve and the axillary nerve. The nerve to subclavius is branch of the C6 root. The suprascapular nerve is a branch from the upper trunk.**



20- The brachial artery:

- a. Commences at the upper border of teres major.
- b. Initially lies anterior to the humerus.
- c. Lies medial to the median nerve proximally.
- d. Lies medial to the ulnar nerve proximally.
- e. Lies lateral to biceps distally.



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- **Answer: d. the artery commences at the lower border of teres major. It initially lies medial to the humerus and then moves anteriorly. Proximally the ulnar nerve is medial to it, and the musculocutaneous and median nerves lies laterally. It lies medial to biceps and its tendon.**



21- Sites of ulnar nerve entrapment include the:

- a. Arcade of Frohse.
- b. Carpal tunnel.
- c. Lateral triangular space.
- d. Arcade of Struthers.
- e. Cubital fossa.



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- Answer: d. the ulnar nerve can get trapped in the arcade of Struthers, which is the proximal end of the cubital tunnel. The median and radial nerves pass through the cubital fossa, but not the ulnar. The radial nerve passes through the lateral triangular space and the median nerve through the carpal tunnel. The arcade of Frohse is a site of possible posterior interosseus nerve entrapment.



22- Which of the following muscles does not attach to the common flexor origin of the forearm:

- a. Pronator teres.
- b. Palmaris longus.
- c. Flexor carpi ulnaris.
- d. Flexor carpi radialis.
- e. Flexor pollicis longus.



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- e. **Flexor pollicis longus.**



Answer: e. the muscles attached to the common flexor origin are pronator teres, flexor carpi radialis ,Palmaris longus,flexor digitorum superficilis and flexor carpi ulnaris. The deep muscles of the forearm do not attach ,and they are pronator quadrates,flexor digitorum profundus and flexor pollicis longus.



23- The branches of the posterior cord of the brachial plexus do NOT include the:

- a. Upper subscapular nerve.
- b. Lower subscapular nerve.
- c. Axillary nerve.
- d. Musculocutaneous nerve.
- e. Thoracodorsal nerve.



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○ Answer: d. the branches of the posterior cord are the upper and lower subscapular nerves, thoracodorsal nerve, axillary nerve and radial nerve. The musculocutaneous nerve is a branch of the lateral cord.



24- Which statement is true regarding the axilla:

- a. Pectoralis major forms the posterior wall.
- b. Latissimus dorsi forms the lateral wall.
- c. The apex is bounded by the first rib, clavicle and scapula.
- d. Serratus anterior contributes to forming the posterior wall.
- e. The floor of the axilla is formed by the clavipectoral fascia.



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 - e. The floor of the axilla is formed by the clavipectoral fascia.
- - **Answer: c. the axilla is a space shaped like a pyramid which has anterior posterior and medial walls. The anterior wall is formed by pectoralis major and minor; the posterior wall is formed by subscapularis , latissimus dorsi and teres major and the medial wall is formed by serratus anterior and the ribs. The floor is formed by the axillary fascia. The apex is formed by the first rib, clavicle and scapula.**



25- A man is stabbed in the arm during a fight . on examination he finds himself unable to extend his wrist., although his elbow movment is intact. The injury is most likely to involve:

- a. The radial nerve in the axilla.
- b. The median nerve as it passes between the heads of pronator teres.
- c. The ulnar nerve as it passes behind the medial epicondyle.
- d. The radial nerve in the spiral groove.
- e. The median nerve as it arises from the lateral and medial cords of the brachial plexus.



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- d. **The radial nerve in the spiral groove.**
- e. The median nerve as it arises from the lateral and medial cords of the brachial plexus.

○

- **Answer: d. the radial nerve arises from the posterior cord of the brachial plexus and passes along the posterior aspect of the humerus in the spiral groove where it is vulnerable to damage from a fractured humerus. It then pierces the lateral intermuscular septum and divides into the posterior interosseous nerve and the superficial radial nerve at the level of the lateral epicondyle. Damage to the nerve in the spiral groove causes wrist drop but not loss of elbow extension because the nerve supplying the triceps muscle are given off more proximal to this. To also cause loss of elbow extention,damage would have to be at the level of the axilla.**



26- Damage to peripheral nerves result in specific areas of sensory loss. Which of the following nerve-sensory area pairings is incorrect:

- a. Radial nerve –dorsal web space between thumb and index finger.
- b. Musculocutaneous nerve – lateral area of forearm.
- c. Median nerve – palmar aspect of index finger.
- d. Obturator nerve –lateral aspect of thigh.
- e. Deep peroneal nerve –dorsal aspect of 1st web space.



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 - d. Obturator nerve –lateral aspect of thigh.
 - e. Deep peroneal nerve –dorsal aspect of 1st web space.
- - **Answer: d. the obturator nerve supplies the muscles in the medial compartment of the thigh and arises from the lumbar plexus (L1-4 ventral rami). It also supplies sensation to a patch of skin on the medial aspect of the thigh. Irritation of this nerve by pelvic pathology may result in pain in this distribution because the lateral pelvic peritoneum is supplied by the obturator nerve as it passes through the pelvis.**



27- Which statement is True regarding the rotator cuff?

- a. Teres minor is attached to the lesser tuberosity.
- b. The muscles attach at the level of the surgical neck of the humerus.
- c. The tendon of infraspinatus is fused with the capsule of the shoulder joint.
- d. Subscapularis runs through a tunnel formed by the acromion and the coraco-acromial ligament.
- e. It supports the shoulder joint but is deficient inferiorly.



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- **Answer: e. the rotator cuff is a ring of muscles that surrounds and strengthens the shoulder joint, but is deficient inferiorly. They attach at the level of the anatomical neck of the humerus. Specifically the attachments are: subscapularis to the lesser tuberosity; supraspinatus, teres minor and infraspinatus to the greater tuberosity (in that order from above down). As well as moving the shoulder joint they also act as a muscular support. Supraspinatus runs through a tunnel formed by the acromion and the coraco-acromial ligament and its tendon is fused to the capsule of the shoulder joint.**



28- The following are all features of carpal tunnel syndrome Except:

- a. Pain often worse at night.
- b. Positive Tinel's test.
- c. Positive Phalen's test.
- d. Wasting of the hypothenar muscles.
- e. Paraesthesia over thumb and lateral two fingers.



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- **Answer: d. carpal tunnel syndrome is due to compression of the median nerve within the carpal tunnel, which itself made up of the carpal bones and the transverse carpal ligament. It may be idiopathic or associated with pregnancy, Rheumatoid arthritis, diabetes or hypothyroidism. It typically presents with pain and Paraesthesia over the thumb and lateral two fingers, which is worse at night. There may be associated wasting of the thenar muscles. Tinnel's test involves reproduction of symptoms on tapping over the carpal tunnel whereas Phlen's test involves reproduction of symptoms on flexing the wrist.**



29- Which of the following statements about the brachial plexus is False:

- a. The thoracodorsal nerve arises from the posterior cord.
- b. The medial and lateral cords join to form the median nerve.
- c. The trunks of the plexus are found in the posterior triangle of the neck.
- d. The long thoracic nerve originate from trunks C5,C6 and C7.
- e. The nerve that supplies subscapularis is a branch from the posterior cord.



29- Which of the following statements about the brachial plexus is False:

- a) The thoracodorsal nerve arises from the posterior cord.
 - b) The medial and lateral cords join to form the median nerve.
 - c) The trunks of the plexus are found in the posterior triangle of the neck.
 - d) **The long thoracic nerve originate from trunks C5,C6 and C7.**
 - e) The nerve that supplies subscapularis is a branch from the posterior cord.
- o **Answer: d. the brachial plexus is made up of five nerve roots (C5-T1) , which then form trunks in the posterior triangle of the neck. C6 and C7 join to form the superior trunk, C7 continues as the middle trunk and C8 and T1 form the inferior trunk, the trunks divide into anterior and posterior divisions and then combine to form lateral posterior and medial cords. The cords divide to form the main nerves: musculocutaneous nerve (lateral cord), median nerve (lateral and median cords), axillary nerve (posterior cord), radial nerve (posterior cord) and the ulnar nerve (medial cord). There are several branches arising from the roots,trunks and cords. For example: the long thoracic nerve, which supplies serratus anterior,arises from nerve roots C5-C7; the thoracodorsal nerve , which supplies latissimus dorsi ,arises from the posterior cord, whereas the nerve to subscapularis arises from the posterior cord.**



30- A 35-year-old tennis player find herself unable to play because of a painful left shoulder. Pain is worse on lifting the arm, particularly when elevated between 60-120 degrees. On examination there is tenderness just lateral to the acromium process. The diagnosis is:

- a. Supraspinatus rupture.
- b. Frozen shoulder.
- c. Acromioclavicular joint dislocation.
- d. Supraspinatus tendonitis.
- e. Biceps tendon rupture.



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- **Answer: d. supraspinatus tendonitis is usually caused by vigorous exercise in people over 40 years. They present with a 'painful arc' of shoulder movement when the arm passes through 60-120 degrees of abduction. In contrast supraspinatus rupture makes active abduction impossible, although there is a full range of passive movement. Frozen shoulder occurs as a result of degenerative changes of the rotator cuff. Pain due to this causes the patient to hold the shoulder still and adhesions form, which limit movement even more until only scapular movement remains. Rupture of the long head of biceps usually occurs in a previously diseased tendon and causes pain, tenderness and bunching up of the muscle in the lower arm.**



THERE IS ONLY ONE WAY TO DO ANY EXAM AND
THAT IS ONCE!

- Reference:
- past practice papers . MRCS , Irfan Halim.

Thank you,,,

