

FOR QUESTIONS 1 THROUGH 25 SELECT THE SINGLE BEST ANSWER - (3 points each)

1. Which of the following statements about the back is **INCORRECT**?

A  
 The erector spinae receives motor innervation from the dorsal <sup>rami</sup> roots of spinal nerves  
 Bilateral shortening contractions of the erector spinae muscles will extend the spine.  
 The posterior longitudinal ligament is located in the anterior wall of the vertebral canal.  
 The spinous process of the T7 vertebra is located on a line connecting the inferior angles of the scapulae.

2. Which of the following anatomical features make the lumbar region a good site for performing spinal taps?

C  
 The interlaminar spaces are smaller than at higher vertebral levels  
 The conus medullaris is located at the S1/S2 vertebral levels.  
 The spinous processes do not overlap.  
 The subarachnoid space terminates at the L1/L2 vertebral level.

3. Which of the following structures are located in the anterior boundary of a lumbar intervertebral foramen?

B  
 Pedicle  
 Intervertebral disc  
 Zygapophyseal joint  
 None of the above

4. Spinal nerves...

D  
 are mixed nerves that are formed by the convergence of dorsal and ventral roots.  
 give rise to dorsal rami that innervate the skin of the medial 2/3 of the back, deep back muscles, and zygapophyseal joints.  
 supply areas of skin called dermatomes.  
 All of the above are correct.

5. Which of the following statements about the back is **INCORRECT** ?

B  
 Denticulate ligaments are extensions of pia mater that attach to the dura and help stabilize the spinal cord.  
 The internal vertebral venous plexus is found in the ~~subdural~~ space.  
 The supraspinous ligament helps to resist excessive flexion of the vertebral column.  
 The zygapophyseal joint spaces in the lumbar spine are oriented in the sagittal plane.

6. Regarding the back, which of the following statements is CORRECT?

During lateral bending, the ipsilateral erector spinae muscles undergo lengthening contractions.

The nucleus pulposus is located anteriorly within an intervertebral disc.

During flexion of the spine, the ~~posterior~~ anterior aspects of the intervertebral discs are subject to compressive forces.

The cell bodies for the afferent nerve fibers found in spinal nerves are located in the dorsal root ganglia.

7. Which action at the shoulder joint would NOT be affected if the deltoid muscle were paralyzed?

Adduction

Flexion

Abduction

Extension

8. Which of the following rotator cuff muscles does not insert on the greater tuberosity of the humerus?

Supraspinatus

Subscapularis

Infraspinatus

Teres minor

9. Which of the following branches of the cervical plexus provides sensory innervation of the "shoulder pad" region?

Transverse cervical nerve

Greater auricular nerve

Lesser occipital nerve

Supraclavicular nerve

10. Which of the following actions at the shoulder joint could NOT BE INITIATED if the suprascapular nerve was severed?

Medial rotation

Abduction

Lateral rotation

Adduction

11. Paralysis of which of the following muscles would compromise adduction of the upper extremity at the shoulder joint?

Supraspinatus  
Latissimus dorsi  
Infraspinatus  
Serratus Anterior

12. Your patient was diagnosed to have a narrowing of the scalene interval. Which of the following structures would **MOST LIKELY** be affected by this condition?

Phrenic nerve  
Subclavian vein  
Inferior trunk of the brachial plexus  
Suprascapular artery

13. The middle trunk of the brachial plexus is formed as a consequence of a ...

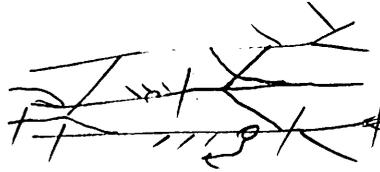
merger of C6 and C7 ventral rami.  
merger of C8 and T1 dorsal rami.  
continuation of C7 ventral ramus.  
merger of C3, C4 and C5 ventral rami.

14. Because of cross-talk between sensory neurons in the spinal cord, painful stimuli from the central part of diaphragm can be referred to skin overlying the...

shoulder pad region.  
angle of the mandible.  
lateral forearm.  
medial arm.

15. If there was a destructive lesion of the upper and lower subscapular nerves. Which actions would be weakened or impaired?

Flexion at the elbow joint and supination of the forearm.  
Internal rotation and adduction at the shoulder joint.  
External rotation and adduction at the shoulder joint.  
External rotation and abduction at the shoulder joint.



16. The anterior division of the inferior trunk of the brachial plexus...
- merges with the anterior division of the middle trunk to form the lateral cord.
  - is composed of contributions from the C6, C7 and C8 ventral rami.
  - becomes the medial cord of the brachial plexus.
  - gives rise to the nerve to the latissimus dorsi muscle.
17. Paralysis of all of the intrinsic muscles of the hand would occur following a destructive lesion of the...
- inferior trunk of the brachial plexus.
  - posterior cord of the brachial plexus.
  - median nerve.
  - ulnar nerve.
18. A destructive lesion of the musculocutaneous nerve would result in all the following, **EXCEPT?**
- Paralysis or weakness of the triceps muscle
  - Damage to some of the axons derived from C5 and C6 ventral rami
  - Severe weakness in flexion at the elbow joint
  - Diminished cutaneous sensation on the lateral surface of the forearm
19. A destructive lesion of the dorsal roots of the C8 spinal nerve will produce diminished sensation in skin on the...
- lateral forearm
  - lateral hand
  - middle finger
  - medial hand
20. Which of the following deficits would be **LEAST LIKELY** to be present following a midshaft fracture of the humerus?
- weakness in wrist extension
  - loss of elbow extension
  - weakness in extension at the MP joints
  - diminished sensation on the dorsum of the lateral hand

21. Which of the following correctly describes the location of the brachial artery at the elbow?

- lateral to the median nerve
- medial to the biceps brachii tendon
- deep to the bicipital aponeurosis
- all of the above

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22. A lesion of the median nerve at the elbow could cause all of the following **EXCEPT**...

- weakness in finger flexion
- weakness in wrist flexion
- weakness in wrist adduction
- weakness in wrist abduction

23. An ulnar nerve lesion at the wrist could cause all of the following deficits **EXCEPT**...

- weakness in index finger abduction
- weakness in index finger adduction
- weakness in thumb adduction
- weakness in thumb abduction

24. Compression of the median nerve in the carpal tunnel could cause all of the following **EXCEPT**...

- weakness in thumb opposition
- diminished sensation in skin on the palm
- weakness in simultaneous MP flexion and IP extension of the middle finger
- weakness in thumb flexion

25. Which of the following muscles can simultaneously flex the MP, PIP and DIP joints in the hand?

- lumbricals
- flexor digitorum profundus
- interossei
- A and C

12 ✓

PRINT NAME \_\_\_\_\_

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Questions 26 - 33 of this examination are worth 3 points each and are short answer questions that require you to fill in the blank or blanks with the correct missing word or words. The answers should be written directly in the blank spaces provided on this page and the following page. Be sure to PRINT YOUR NAME and write your SIGNATURE on the lines provided on each of these pages. Be sure to tear off and turn in these pages at the end of the exam.

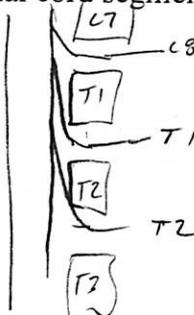
26. A small posterolateral herniation of the C5-C6 disc will typically cause an irritative lesion of the C6 spinal nerve.

27. If a muscle is undergoing an isometric contraction against gravity and the number of active motor units is slowly reduced the muscle will begin to undergo a lengthening contraction.

28. A lesion of the Accessory nerve will result in lateral winging of the scapula.

29. In the adult, the T2 spinal cord segment is typically found adjacent to the T1 vertebra.

?



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30. The posterior humeral circumflex artery and axillary nerve are vulnerable to injury in a fracture of the surgical neck of the humerus.
31. A lesion of the Long Thoracic nerve could weaken or paralyze the Serratus anterior muscle and produce medial winging of the scapula.
32. Contraction of the triceps muscle elicited by tapping its tendon is a good test of the C7 segment of the spinal cord.
33. At the wrist, the pulse of the ulnar artery can be palpated just deep and lateral to the tendon of the Flexor Carpi Ulnaris muscle.

## END OF QUESTIONS

