This is NOT intended to be strongly representative of the actual exam, neither is it intended to thoroughly address all topics listed in the exam 3 study guide. However, it should definitely help you determine if you are understanding many of the concepts that will be tested on Exam 3.

___1. Which of the following is a biaxial condyloid joint and does NOT move in the transverse plane?
   a. humeroulnar
   b. proximal radioulnar
   c. radiocarpal
   d. distal radioulnar
   e. two of the above

___2. Gravity resisted manual muscle testing (MMT) of the pronator teres is performed with the patient in what position?
   a. supine
   b. prone
   c. sidelying
   d. seated

___3. Which elbow ligament supports the lateral side of the elbow (ie. humeroradial and humeroulnar joint complex) and is stressed by a varus force across the joints?
   a. lateral collateral ligament.
   b. medial collateral ligament.
   c. middle glenohumeral ligament
   d. dorsal radiocarpal ligament.
   e. annular ligament.

___4. Which of the following is a prime movement action of the flexor carpi ulnaris (via concentric contraction), though not solely attributed the isolated contraction of the FCU?
   a. wrist extension
   b. wrist radial deviation
   c. finger extension
   d. elbow extension
   e. none of the above

___5. When performing AROM measures on a patient’s UE, which of the following goniometric measurements utilizes the capitate as a landmark for goniometer alignment?
   a. forearm pronation
   b. elbow extension in forearm supination
   c. elbow flexion
   d. wrist ulnar deviation
   e. none of the above

___6. Of all the muscles in the posterior side of the forearm, which of those muscle(s) is/are innervated exclusively by the median nerve?
   a. extensor carpi ulnaris
   b. flexor carpi ulnaris
   c. palmaris longus
   d. extensor digitorum
   e. none of the above
7. What of the following is an antagonist to the eccentric action of the pronator teres, when the elbow is flexed & forearm is being supinated by an external torque (with the rate of supination being slowed by the pronator teres)?
   a. biceps brachii.
   b. brachialis.
   c. brachioradialis.
   d. pronator quadratus.
   e. triceps brachii.

8. Which of the following muscles helps produce flexion of the wrist (via concentric contractions), regardless of position of the fingers?
   a. palmaris longus
   b. flexor carpi radialis
   c. flexor digitorum superficialis
   d. all of the above
   e. only two of the above

9. Elbow flexion, forearm supination, and shoulder flexion are the actions of a single muscle which is innervated by
   a. musculocutaneous nerve
   b. radial nerve
   c. brachial nerve
   d. median nerve

10. Which of the following muscles has the same eccentric action as the anconeus muscle?
    a. supinator
    b. triceps medial head
    c. brachioradialis
    d. pronator quadratus

11. The Rule of Moving Concave Surfaces (in the context of distal bone moving, open chain) applies to the
    a. radiocarpal joint
    b. humeroulnar articulation
    c. humeroradial articulation
    d. two of the above
    e. none of the above

12. Which ligament of the elbow, forearm, and/or wrist is unique because it is lined with hyaline cartilage?
    a. lateral collateral ligament.
    b. medial collateral ligament.
    c. conoid ligament
    d. dorsal radiocarpal ligament.
    e. annular ligament.

13. Which of the following goniometric measurements at the elbow CAN utilize the midpoint of the wrist as a landmark for goniometer alignment?
    a. flexion
    b. extension
    c. pronation
    d. a & b

14. Wrist drop is most likely due to
    a. wrist flexor muscle paralysis
    b. median nerve damage
    c. wrist extensor muscle paralysis
    d. ulnar nerve damage
15. The ability to perform a movement thru complete test range against gravity yet not tolerate any additional resistance is a MMT grade of
a. 3 +
b. 3
c. 2
d. 5

16. The movements of wrist flexion and ________________ are often used together/simultaneously during functional activities at the wrist.
a. wrist extension
b. ulnar deviation
c. radial deviation
d. forearm pronation

17. Average / normal ROM for elbow flexion is
a. 80 degrees
b. 140 degrees
c. 180 degrees

18. Average / normal ROM for forearm supination is
a. 120 degrees
b. 80 degrees
c. 50 degrees

19. Average / normal ROM for wrist extension is
a. 100 degrees
b. 130 degrees
c. 40 degrees
d. 70 degrees

20. Average / normal ROM for wrist radial deviation is
a. 5 degrees
b. 60 degrees
c. 20 degrees
d. 45 degrees

21. Based on Fig 7-24 in Neumann, the most potent muscle for performing ulnar deviation (from an internal torque perspective) is
a. the extensor carpi ulnaris
b. the flexor carpi ulnaris
c. the flexor pollicis longus
d. the extensor carpi radialis brevis
e. the flexor digitorum profundus

22. The ulnar nerve is at risk for injury in the cubital tunnel as well as
a. in the carpal tunnel.
b. between the 2 heads of the pronator teres muscle.
c. where it travels thru the supinator muscle.
d. two of the above
e. none of the above
23. Which of the following is true regarding the carrying angle at the R elbow (see picture)?
   a. it is called cubitus valgus.
   b. it is called cubitus varus.
   c. this person is unable to feed themselves with the R hand.
   d. the deformity was caused from repeated trauma from a gunstock.
   e. there is strong evidence that this person’s elbow does not have a LCL.
   f. two of the above.

24. According to Neumann, grip force at the hand can be maximally produced when the wrist is stabilized in about 30-35° of extension. The explanation of this concept is based on
   a. the length-tension relationship of the long finger flexors (FDS, FDP).
   b. the internal moment arm of the wrist extensors (ECRL, ECRB, ECU).
   c. the tenodesis passive insufficiency grip.
   d. the cross sectional area of the wrist extensor muscles is greatest in wrist extension.

25. With the elbow extended, forearm pronated, and wrist flexed fully; why is it difficult to tightly close the fist (ie. flex the fingers fully)?
   Note: AI = Active insufficiency; PI = Passive insufficiency
   a. AI of the wrist extensors and the extensor digitorum and PI of wrist flexors.
   b. PI of the flexor digitorum superficialis & profundus and AI of the extensor digitorum.
   c. AI of the extensor digitorum only.
   d. AI of the flexor digitorum superficialis & profundus and PI of the extensor digitorum.

26. With the elbow extended, forearm supinated, wrist fully extended, and thumb and fingers fully extended, what muscle(s) is/are getting stretched?
   a. extensor digitorum
   b. extensor carpi radialis brevis
   c. flexor digitorum superficialis
   d. median nerve
   e. two of the above

27. Based on the directional arrow and the movement shown (from left to right),
   a. this is a resisted supination exercise.
   b. this is a wrist flexion and ulnar deviation resisted movement exercise.
   c. this is isometric elbow flexion resistance while supinated (left pic) and isometric elbow flexion resistance with neutral forearm (right pic).
   d. this is a resisted pronation exercise.

28. Based on the directional arrow and the movement shown (the fingers are flexed),
   a. this is a stretch for the brachioradialis
   b. this is an isolated elbow extension joint stretch
   c. this is stretch for the flexor digitorum superficialis and profundus
   d. this is an eccentric resistance exercise for the brachioradialis
   e. none of the above
29. This young adolescent baseball pitcher is throwing an overhand curveball. At the elbow, the _______ structures are being stressed by tensile/stretch forces and the _______ structures are being stressed by compressive forces.

a. lateral bone , medial tendon/ligament/bone
b. medial bone , lateral tendon/ligament/bone
c. medial tendon/ligament/bone , lateral bone
d. lateral tendon/ligament/bone , medial bone

30. The stress being applied to the elbow, during the position shown in the photo, could be summarized as a repetitive

a. varus stress
b. valgus stress

c. _______

31. When weightbearing on the upper extremity and attempting to rotate the forearm and humerus (see picture; this is a CKC movement), the _______ is/are the primary moving bone(s) at the proximal and distal RU joints.

a. radius
b. ulna
c. proximal carpals
d. all of the above

32. When using a manual screw driver (in the R hand) to vigorously tighten a screw (ie. push and turn), the ms. contractions and joint motions are isometric shoulder extension, isometric elbow extension, and concentric forearm supination

a. True
b. False

c. _______

33. A person with C6 quadriplegia (complete lesion) does not have voluntary neurological control of

a. Biceps
b. Deltoid
c. Triceps
d. Upper Traps

e. _______

34. The so-called “functional arc” of elbow flexion & extension AROM where an abundance of ADLs is performed is

a. 5° of hyperextension to 30° of flexion
b. 90° to 145° of flexion
c. 0° to 60° of flexion
d. 30° to 130° of flexion
e. has not been defined at the elbow; only defined at the forearm
35. According to Neumann, the forearm is more likely to develop hypomobility/contracture at the interosseus membrane if immobilized (splinted or casted) in
a. pronation
b. extension
c. neutral
d. supination
e. flexion

Matching: Match answers a – f with the correct written description; use each letter once, more than once or not at all

36. agonist is anterior deltoid
37. prime mover is brachioradialis
38. prime mover is brachialis
39. antagonist is triceps
40. agonist is triceps
41. antagonist is pronator teres
42. resistance is gravity; therefore the movement is gravity resisted
43. wrist extensors are contracting
44. finger flexors are contracting

a. 
b. 
c. 
d. 

e. at least two of the above
f. none of the above
1. C
2. D
3. A
4. E, correct answers include wrist flexion and ulnar deviation
5. D
6. E, the muscles in the posterior side of the forearm are innervated by the radial nerve
7. A
8. E, flexor carpi radialis and palmaris longus help in wrist flexion
9. A
10. B
11. D, both the humeroulnar and humeroradial articulations are moving concave surfaces
12. E
13. D
14. C
15. B
16. B
17. B
18. B
19. D
20. C
21. A
22. E
23. B
24. This is a trick question; the current notion is that radiocarpal & midcarpal contribute fairly equally to flexion and extension. The stance on this has varied across the years; see Neumann pg226, R column
25. D
26. C
27. D
28. E, of greatest importance is what is happening at the wrist hand (combined with the position of the elbow and forearm); this is a stretch that targets the extensor digitorum (full elbow extension, forearm pronation, and wrist and finger flexion). Might also target the ECRL if ulnar deviation is a part of the stretch, but this might lessen the stretch on the ED. picture may be vague, but it makes you think (and its just a practice test)
29. C
30. B
31. B, ulna is moving because the radius is fixed as a weightbearing bone in this position; humerus is also moving (which allows the ulna to move) but humerus was not listed as a possible answer.
32. B; isometric shoulder FLEXION
33. C
34. D
35. A
36. C
37. B
38. B
39. B
40. E (A & C)
41. F
42. E (B, C, D for sure)
43. E (A, B, D for sure b/c grip is occurring . . . wrist extensors stabilize wrist against the pull of finger flexors)
44. E (A, B, D for sure b/c grip is occurring)