TEACHERS COLLEGES OF JAMAICA

BACHELOR OF EDUCATION

MAY 2018 - EXAMINATIONS

COMMON PAPER

PHYSICAL EDUCATION

KINESIOLOGY
[PE 205SEB]

YEAR 2
SECONDARY

TIME: 2 HOURS

INSTRUCTIONS: Candidates are required to answer ALL questions in Sections A and B
and any TWO questions from Section C.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

1.   Categorize the following muscle fiber arrangements and state the reason for your answer.

a   b   c
Figure 1

a) _____

    _____

    _____

b) _____

    _____

    _____

c) _____

    _____

    _____

(3 x 2 marks)

2.   In a game of football, John was observed shooting with the instep. We noticed the toes of the kicking foot were pointing downward towards the ground with his ankle locked.
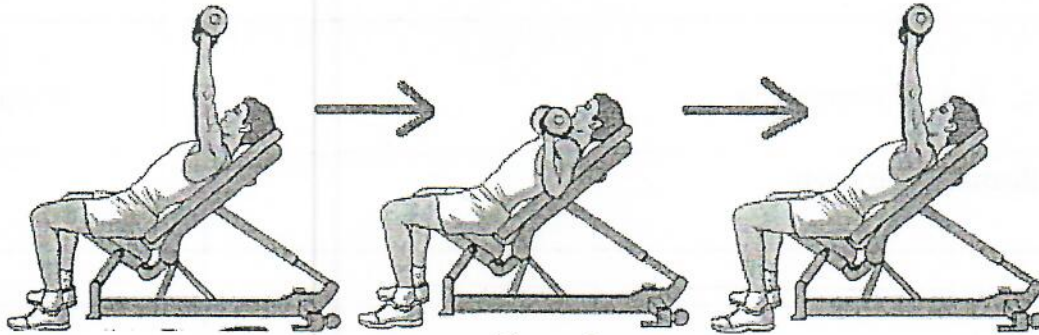
a.   Which joint action was observed at the ankle?

_____   (1 mark)

Figure 2

b.   Using the Figure 2 above. Identify four possible joint actions of the upper body during the exercise sequence.   (4 marks)

_____

_____

3.   Figure 3 shows an athlete doing exercises. State the type of contraction occurring at each phase of the activity and give a reason for your answer.
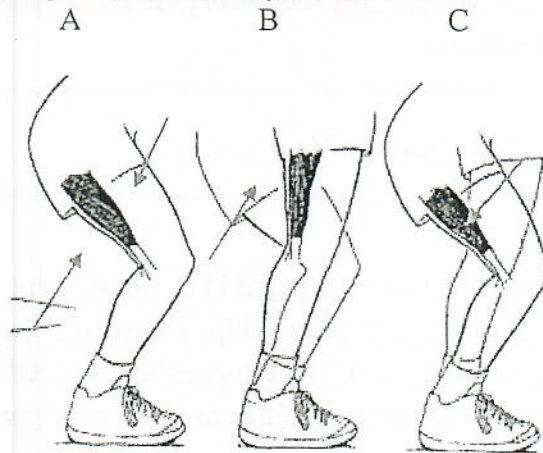
A   B   C

Figure 3

a.   Type of contraction: (2 marks)

_____

Reason for answer:

_____

_____

_____

b. Type of contraction: (2 marks)

Reason for your answer:

_____

_____

_____

c. Type of contraction: (2 marks)

Reason for answer:

_____

_____

_____

4. a. State what proprioceptors are and where they are located. (2 marks)

_____

_____

b. State what the following organelles/organs are sensitive to: (2 marks)
   i. Muscles spindles

   _____

   ii. Golgi tendon organs (GTO)

   _____

5. Two students in your class are engaged in a 100 m sprint. At the sound of your whistle, both exit from the starting blocks quickly. The smaller student leads up to 10 meters, before he is caught and passed by the bigger/heavier student who stops after crossing the finish line. Explain how Newton's three laws of motion were used in the scenario.

Law1: (3 marks)

_____

_____

_____

Law 2: (3 marks)

_____

_____

_____

_____

Law 3: (3 marks)

_____

_____

_____

_____

SECTION B

Answer ALL questions in this section. (20 marks)

1. Define EACH of the following terms: (4 marks)
    a. scalar quantity
    b. vector quantity

2. In Susan's practical class, she was able to throw a shot 6 m north in 2 seconds using the glide technique.
    a. What was the average speed travelled by the shot? (2 marks)
    b. Calculate the average velocity travelled by the shot, assuming all things remain equal. (2 marks)

3. Using the arm as a third-class lever, and assuming that
    i.   the biceps is flexing the forearm against a resistance of 15 kg,
    ii.   the fulcrum is the elbow joint and
    iii. the biceps is inserted 2 cm from the fulcrum and
    iv.   the distance from the fulcrum to the center of the resistance is 25cm, calculate the force needed to balance the lever. (4 marks)

4. An athlete doing *cleans* in the gym displaces 200 lbs a distance of 5 ft in 3 seconds. Calculate his horse power (hp.). (4 marks)

5. A sprinter accelerates from 0 to 30 meters east on the track in 4 seconds. Calculate his acceleration (4 marks)

4

SECTION C

Answer TWO questions from this section. [40 marks]

1.   a.   State FOUR principles of stability. (4 marks)

       b.   Give examples of how the four principles listed above are used in sport to improve performance. (4x4 marks)

2.   Analyze the action of the **kicking leg** during the execution of an inside of the foot passing in Football. (20 marks)

3.   A point guard receives a pass and attempts a jump shot;

       a. Analyze the actions of his shooting arm during the action of the shot towards the hoop. (10 marks)

       b. Identify the levers and explain how they provide the speed and accuracy to get the ball to the intended target. (10 marks)

4.   The *squat* is one of the main exercises done in the gym to strengthen the lower body.

       a. Deductively analyze the actions of the legs in performing the SQUAT. (10 marks)

       b. Identify the levers and provision for power. (10 marks)

5.   Identify the *joint actions* of the Putting arm of a Shot Putter from the power position to the Putt. State the muscle involved in each action. (20 marks)

END OF EXAMINATION