

UNIVERSITY OF BOLTON
SCHOOL OF SPORT AND BIOLOGICAL
SCIENCES
MSc SPORT REHABILITATION PATHWAY
SEMESTER 1 EXAMINATIONS 2019/2020
ANATOMY AND PHYSIOLOGY
MODULE NO. SRB7001

Date: Wednesday 15th January 2020 Time: 10am – 1pm (3 hours)

INSTRUCTIONS TO CANDIDATES:

You have 3 hours for this examination paper, and you should allocate your time equally or logically across the questions to ensure sufficient detail is given.

There are 5 main questions on this paper, please answer ALL questions. Therefore, at least 30 minutes should be given for each question (2.5 hours) leaving 30 additional minutes to apply as required.

Each question is equally weighted and marked as a percentage out of 100% in line with the detail and depth provided according to general marking guidelines and mark scheme items. An overall percentage for the paper is then calculated. Any sub-division of a question is stated as part (a), (b), (c) etc. and weighted accordingly.

You should look to elaborate on your answers using applied examples where possible.

School of Sport and Biological Sciences
MSc Sports Rehabilitation Pathway
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Anatomy and Physiology
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1. Discuss and appraise the following tissues in the body and relate their structural properties to their distinct functions and locations. Within your answer, you can refer to any applied examples and physiological characteristics across these tissues.

- i. Tendon connective tissue
- ii. Bone connective tissue
- iii. Skeletal muscle tissue
- iv. Epithelial tissue

2. This question is sub-divided and weighting stated in brackets:

- a. (50%) Describe the structures and processes involved during the following reflex actions:
 - i. Stretch reflex
 - ii. Crossed extensor reflex
 - iii. Golgi tendon reflex
- b. (25%) Discuss the integration of these structures and reflexes in maintaining an upright posture
- c. (25%) Discuss the processes of conscious (voluntary) and subconscious (involuntary) neurological control using a physical task of your choice.

Please turn the page

- 3. Describe the chain of physiological events which originate from the motor cortex and integrate with muscle tissue to produce muscular activation.**

- 4. Discuss the physiological principles of motor units and how variations in motor unit characteristics in different muscle groups suit the following particular physical tasks:**
 - i. A single leg balance
 - ii. A maximal isometric knee extension for 5 seconds
 - iii. A cycling time trial task over 20 minutes

- 5. Choose a particular example of a steady state exercise task and discuss the homeostatic regulatory autonomic processes involved across:**
 - i. cardiovascular,
 - ii. respiratory, and
 - iii. endocrine responses

END OF QUESTIONS