

UNIVERSITY OF BOLTON

FACULTY OF HEALTH AND WELLBEING

BSc (HONS) ADULT NURSING

SEMESTER TWO EXAMINATION 2018/2019

INTRODUCTION TO HUMAN ANATOMY AND
PHYSIOLOGY

MODULE NO: HLT4082

Date: Wednesday 20 March 2019

Time: 10.00 am

INSTRUCTIONS TO CANDIDATES:

There are 59 questions.

Answer ALL questions.

Please remove Page 3 and attach it to the answer booklet provided.

Maximum marks 86.

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Introduction (3 marks total)

1. Which of the following sentences best describes anatomy?

- a) The study of the structure of the body and the physical relationships involved between the body parts
- b) The study of how the parts of the body work and the ways in which they cooperate to maintain health and life
- c) A self-regulating process necessary the normal state of the body's environment
- d) Tissues grouping together to become a discrete functional unit

1 mark

2. Which of the following sentences best describes homeostasis?

- a) The study of abnormalities and how they affect the body
- b) The study of how the parts of the body work together and the ways in which they co-operate to maintain health and life
- c) A self-regulating process necessary for the normal state of the body's environment
- d) Tissues grouping together to become a discrete functional unit

1 mark

3. Which of the following sentences best describes pathology?

- a) The study of abnormalities and how they affect the body
- b) The study of how the parts of the body work together and the ways in which they co-operate to maintain health and life
- c) A self-regulating process necessary for the normal state of the body's environment
- d) Tissues grouping together to become a discrete functional unit

1 mark

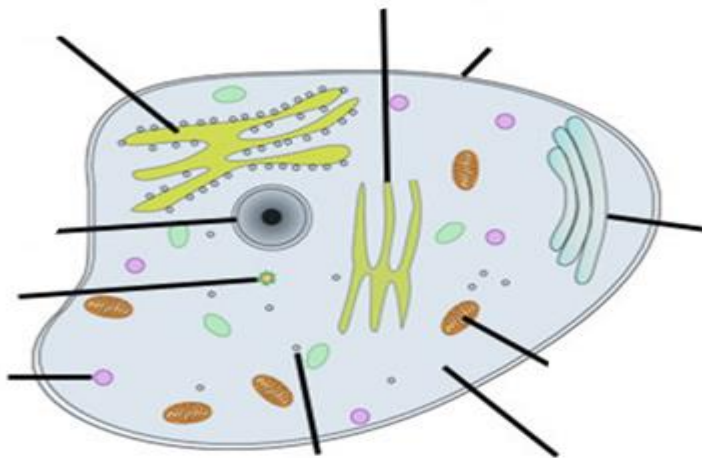
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The Cell (10 marks total)

4. Using the list of cell components, please label the diagram of the cell below.
Please remove this page and attach it to the answer booklet provided.

- Smooth endoplasmic reticulum
- Cell membrane
- Golgi apparatus
- Mitochondrion
- Cytoplasm
- Ribosome
- Lysosome
- Centrosome
- Nucleus
- Rough endoplasmic reticulum



(0.5 marks for each correct answer/5 marks total)

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5. Which of the following sentences best describes mitochondrion?
- a) A viscous, translucent, watery material containing a large percentage of water, inorganic ions and naturally occurring organic compounds.
 - b) The power house, energy producing site of the cell.
 - c) The cells control centre which plays a role in cell growth, metabolism & reproduction.
 - d) It is the part of the cell that moves fluid or particles over the surface of the cell

1 mark

6. Of the four functions listed below, which three are functions of a human cell?

- a) Metabolism
- b) Photosynthesis
- c) Reproduction
- d) Excretion

(1 mark for each correct answer/3 marks total)

7. What is one of the main function of cytoplasm?

- a) It contains chromosomes and is the cells control centre
- b) Storage of glycogen
- c) Supports organelles
- d) Packages proteins for secretion

1 mark

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The integumentary system (5 marks total)

8. Of the 4 examples given below, which example names the layers of the skin?

- a) Epidermis, endometrium, dermis
- b) Endometrium, hypodermis, myometrium
- c) Epidermis, dermis, hypodermis
- d) Hypodermis, epidermis, myometrium

1 mark

9. Of the 4 functions given below, which one is **not** a function of the skin?

- a) Synthesis of vitamin D
- b) Thermoregulation
- c) The manufacture of proteins
- d) Storage of lipids and water

1 mark

10. Of the four options listed below, which one is not a function of sweating?

- a) Preventing harmful fluid in the environment from entering the body
- b) Inhibiting proliferation of bacteria
- c) Maintaining acidic pH
- d) Maintaining body temperature

1 mark

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11. What is the main function of melanin?

- a) Help wound healing
- b) Protect the skin from UV rays
- c) Eliminate waste materials
- d) Retain body fluids

1 mark

12. Of the 4 sentences listed below, which sentence names the main components of sweat?

- a) Sebum, potassium and erythropoietin
- b) Calcium, potassium and water
- c) Water, sodium and urea
- d) Water, sodium and calcium

1 mark

The Skeletal System (5 marks)

13. Of the four components listed below, which two are major components of the skeleton?

- a) The limbic skeleton
- b) The appendicular skeleton
- c) The perpendicular skeleton
- d) The axial skeleton

(1 mark for each correct answer/2 marks total)

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14. The anatomical name for the thigh bone is:

- a) The clavicle
- b) The sternum
- c) The ulna
- d) The femur

1 mark

15. An example of a flat bone is:

- a) Scapula
- b) Ulna
- c) Femur
- d) Metatarsals

1 mark

16. Of the four examples given below, which one is not a main function of the human skeleton?

- a) Storage of calcium and phosphorus
- b) Connects tendon to bone
- c) Maturation of some white blood cells
- d) The manufacture of red blood cells

1 mark

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The muscular system (6 marks)

17. Of the four examples given below, which three are classifications of muscle?

- a) Cardiac
- b) Reticulum
- c) Skeletal
- d) Smooth

(1 mark for each correct answer/3 marks total)

18. Which of the explanations below best describes cardiac muscle?

- a) Has spindle shaped cells with a single nucleus and acts involuntarily
- b) Has striations, branching cells and acts involuntary
- c) Has striations, is normally attached to tendons and acts voluntarily
- d) Is multi-nucleated, has spindle shaped cells and acts voluntarily

1 mark

19. Which of the sentences below best describes the main actions of cardiac muscle.

- a) Conduction only
- b) Conduction and contraction
- c) Contraction only
- d) Contraction and voluntary movement

1 mark

20. Which sentence below best describes isometric movement?

- a) The muscle shortens and movement occurs
- b) Tension in muscles increases, no muscle lengthening occurs
- c) The muscle lengthens as it contracts
- d) The muscle relaxes and movement occurs

1 mark

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The Respiratory System (5 marks total)

21. Of the four structures listed below, which one of these structures **is** a component of the upper respiratory tract?

- a) Trachea
- b) Bronchiole
- c) Pharynx
- d) Alveoli

1 mark

22. Pulmonary ventilation is:

- a) The exchange of oxygen for carbon dioxide within the lungs
- b) The transport of oxygen to the tissues within the body
- c) The movement of air in and out of the lungs
- d) The rate at which a person breathes

1 mark

23. Of the four muscles listed below, which two are examples of the **main** muscles involved in breathing:

- a) Gastrocnemius
- b) Intercostal
- c) Rectus abdominus
- d) Diaphragm

(1 mark for each correct answer / 2 marks in total)

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24. Which one of the following sentences best describes diffusion?

- a) The active transportation of gas against a concentration gradient using ATP.
- b) The movement of liquid molecules from an area of low concentration to an area of high concentration
- c) The movement of gas molecules from an area of high concentration to an area of low concentration
- d) The movement of gas molecules from an area of low concentration to an area of high concentration

1 mark

The Cardiovascular System (4 marks total)

25. Out of the four options listed below, which two are structures of the heart?

- a) Left ventricle
- b) Sartorius
- c) Abdominal aorta
- d) Mitral (bicuspid) valve

(1 mark for each correct answer/2 marks total)

26. Which sentence best describes arteries?

- a) They have valves
- b) Have a wide lumen and less elastic tissue
- c) They have thick muscular walls, they do not have valves and work under high pressure
- d) They carry deoxygenated blood to the heart

1 mark

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27. A definition of coronary circulation is:

- a) The movement of oxygenated blood into the coronary arteries to perfuse the heart
- b) The movement of deoxygenated blood from the right side of the heart to the lungs where it is oxygenated and returned to the left side of the heart
- c) The movement of oxygenated blood from the left side of the heart around the body to the tissues and the return of deoxygenated back the right side of the heart
- d) The movement of oxygenated blood from the right side of the heart around the body to the tissues and the return of deoxygenated back the left side of the heart

1 mark

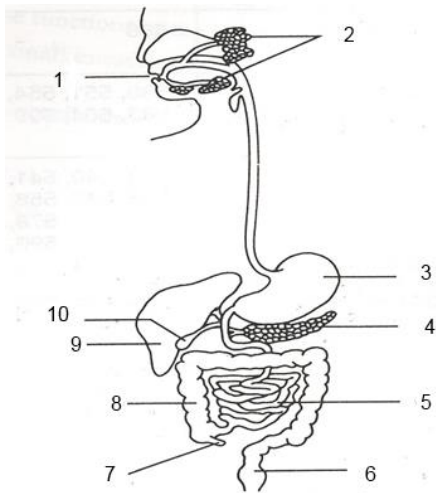
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PAST EXAMINATION PAPER

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The Digestive System (13 marks total)

28. In the answer book provided, please identify which parts of the digestive system are represented by numbers 1-10 on the diagram below:



(0.5 marks for each correct answer/5 marks total)

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29. Of the 4 examples given below, which 2 are examples of types of digestion?

- a) Peristaltic
- b) Mechanical
- c) Excretory
- d) Chemical

(1 mark for each correct answer / 2 marks in total)

30. Two accessory organs of the digestive system are:

- a) Gall bladder
- b) Amylase
- c) Salivary glands
- d) Alveoli

(1 mark for each correct answer / 2 marks in total)

31. The main function of bile is?

- a) The breakdown of carbohydrates
- b) The breakdown of proteins
- c) The emulsification of fats
- d) The regulation of blood glucose

1 mark

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32. Of the 4 functions below, which 2 are functions of the pancreas?

- a) Secretion of bile
- b) Secretion of insulin
- c) Digestion of proteins
- d) Secretion of pancreatic juices

(1 mark for each correct answer / 2 marks in total)

33. Which is the correct order of the stages of digestion?

- a) Oral transit phase, pharyngeal phase, oesophageal phase, Oral preparatory stage.
- b) Oral preparatory stage, oral transit phase, pharyngeal phase, oesophageal phase.
- c) Pharyngeal phase, oesophageal phase, Oral preparatory stage, oral transit phase.
- d) Oesophageal phase, Oral preparatory stage, oral transit phase, Pharyngeal phase.

1 mark

The Renal System (6 marks)

34. The main functions of the kidneys include:

- a) Filtration, reabsorption and digestion
- b) Filtration, reabsorption and excretion
- c) Filtration reabsorption and oxygenation
- d) Filtration, digestion and excretion

1 mark

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35. Of the 4 examples given below, which 2 are main parts of the kidney?

- a) Adrenal gland
- b) Cortex
- c) Medulla
- d) Bladder

(1 mark for each correct answer / 2 marks in total)

36. Which of the following is NOT a function of the kidney?

- a) Production of white blood cells
- b) Secretion of hormones
- c) Maintenance of homeostasis
- d) Excretion of urea

1 mark

37. Out of the four options below, which one details the substance(s) formed with the metabolism of protein?

- a) Glucose
- b) Urea, uric acid and creatinine
- c) Potassium
- d) Sodium

1 mark

38. The nephron is composed of which of the following structures

- e) Proximal convoluted tubule, distal convoluted tubule and renal cortex
- f) Proximal convoluted tubule, distal convoluted tubule and collecting duct
- g) Bowman's capsule, distal convoluted tubule and renal medulla
- h) Bowman's capsule, convoluted tubule and renal cortex

1 mark

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The Nervous System (5 marks total)

39. The central nervous system is composed of:

- a) Spinal cord, brain stem, brain
- b) Midbrain, medulla oblongata, pons
- c) Autonomic and somatic nervous systems
- d) Spinal cord, hypothalamus, cranial nerve 1

1 mark

40. Which sentence best describes a sensory neurone?

- a) Sensory neurones transmit messages from the coordinator to the effector
- b) Sensory neurons transmit messages from sense receptors to the coordinator
- c) Sensory neurones transmit messages from the coordinator to the sense receptor.
- d) Sensory neurones transmit messages from sensory nerves to motor nerves

1 mark

41. Choose one sentence which best describes the autonomic nervous system:

- a) It is under involuntary control
- b) It is under voluntary control
- c) The effector responds to instruction from the CNS
- d) The effector consists of skeletal muscle

1 mark

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42. Neurons transmit nerve signals to one another via the:

- a) Dendrite
- b) Synapse
- c) Myelin sheath
- d) Nucleus

1 mark

43. What is the main function of the nervous system?

- a) Reproduction and survival of the species
- b) To respond to changes in your surroundings (stimuli) and coordinate the correct response
- c) To maintain fluid balance
- d) Growth and development

1 mark

The Lymphatic System (9 marks)

44. Which of the structures below is **not** a major organ of the lymphatic system

- a) The pancreas
- b) The tonsils
- c) Bone marrow
- d) Lymphoid tissue

1 mark

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45. Which of the following sentences best describes phagocytosis?

- a) Fluid balance
- b) Destruction of an infectious organism engulfing and ingesting it
- c) The movement of white blood cells and other useful substance to the site of injury
- d) Absorption of fats

1 mark

46. Which three are the main functions of the lymphatic system?

- a) Detection and destruction of bacteria and viruses
- b) Maintaining the fluid balance of the body
- c) Melanin production
- d) Absorption of fats and fat soluble vitamins

(1 mark for each correct answer / 3 marks in total)

47. Which of the following sentences most accurately describes lymphatic fluid?

- a) A clear fluid that chemically digests food
- b) A clear or whitish fluid that is formed when interstitial fluid is collected through lymph capillaries
- c) A clear or whitish fluid that is formed when interstitial fluid is collected in the spleen
- d) A clear or whitish fluid that is formed when bile is collected in the liver

1 mark

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48. Of the four examples given below, which three are types of white blood cells?

- a) Lymphocytes
- b) Platelets
- c) Neutrophils
- d) Monocytes

(1 mark for each correct answer / 3 marks in total)

The Male Reproductive System (5 marks total)

49. What is the main function of the male urethra?

- a) Transportation of sperm to the urethra
- b) A passage way for ejaculated semen and the excretion of urine
- c) To produce sperm
- d) It is where sperm motility is increased

1 mark

50. Which two are the main functions of the epididymides?

- a) To store sperm until it has matured
- b) A passage way for ejaculated semen and the excretion of urine
- c) To produce sperm
- d) It is where sperm motility is increased

(1 mark for each correct answer / 2 marks in total)

51. The function of follicle stimulating hormone is:

- a) To lower the tone of the voice at puberty
- b) Control sperm production
- c) Increase sperm motility
- d) Stimulate production of oestrogen

1 mark

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52. Of the four sentences given below, which sentence best describes the changes that occur in males during puberty?

- a) Breaking of the voice, growth of facial hair, increased in adipose tissue around the hips
- b) Breaking of the voice, growth of facial hair, increased production of testosterone
- c) Breaking of the voice, growth of facial hair, a decrease in the production of testosterone
- d) Breaking of the voice, growth of facial hair, increased production of progesterone

1 mark

The Female Reproductive System (6 marks total)

53. Of the four components listed below, which three are components of the female internal genitalia?

- a) The ovaries
- b) Clitoris
- c) The uterus
- d) Cervix

(1 mark for each correct answer / 3 marks in total)

54. What is the main function of the labia?

- a) To provide sexual stimulation
- b) To store oocytes
- c) To protect the inner, more sensitive structures of the vulva
- d) To maintain an acidic environment to prevent the growth of bacteria

1 mark

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55. Which sentence best describes an oocyte?

- a) A cell within the ovary
- b) A fertilised cell
- c) An ovum
- d) A gonad

1 mark

56. Which one of the following four sentences best describes fimbriae?

- a) A cell within the ovary
- b) Finger like projections at the end of the fallopian tube next to ovary
- c) The fundus
- d) The lining of the uterus

1 mark

The Endocrine System (4 marks)

57. Which one of the following sentences best describes the location of the pituitary gland?

- a) It is located in the front of the neck just below the larynx.
- b) It is located near the underside of the brain and is connected to the hypothalamus.
- c) It is located at the back (posterior) of the thyroid gland.
- d) It is attached to the adrenal gland

1 mark

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58. Which two of the following sentences best describes the function of insulin?

- a) Stimulation the production of glucose from amino acids and glycerol (gluconeogenesis)
- b) Stimulating the liver to store glucagon
- c) Facilitating the entry of glucose into muscle and other tissues.
- d) Raises the concentration of glucose in the blood

(1 mark for each correct answer / 2 marks in total)

59. What is the main function of Human Growth Hormone (HGH)?

- a) Promotes growth of bone, cartilage and soft tissue
- b) Stimulates the activity of cells in the thyroid gland leading to an increased production and secretion of T_4 and T_3
- c) Increases water retention by the kidneys
- d) Decreases the concentration of glucagon in the blood

1 mark

END OF QUESTIONS