UNIVERSITI KUALA LUMPUR
INSTITUTE OF MEDICAL SCIENCE TECHNOLOGY

FINAL EXAMINATION

OCTOBER 2025 SEMESTER

COURSE CODE	:	HDB10303
COURSE TITLE	:	HUMAN ANATOMY
PROGRAMME NAME	:	BACHELOR OF BIOMEDICAL SCIENCE (HONOURS)
DATE	:	29 JANUARY 2026
TIME	:	9:00AM - 12:00PM
DURATION	:	3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of TWO sections.
4. Answer ALL questions for Section A.
5. Section B consist of four questions. Answer THREE (3) questions only.
6. Please write your answer on the answer booklet provided.
7. Please answer all questions in English only.
8. Please answer MCQ/EMQ questions using OMR sheet. ☐ *Tick if applicable*
9. Refer to the attached Formula/ Appendies. ☐ *Tick if applicable*

THERE ARE 15 PAGES OF QUESTIONS INCLUDING THIS PAGE

SECTION A (Total: 40 marks)

Answer ALL questions.

Please use the answer booklet provided.

1. A patient is identified with Type O blood. According to the ABO blood group classification, their plasma contains _____.

   A. Neither anti-A nor anti-B antibody

   B. Only anti-A antibody

   C. Both anti-A and anti-B antibodies

   D. Only anti-B antibody

2. The external layer of the heart wall, also known as the visceral layer of the serous pericardium, is the _____.

   A. Endocardium

   B. Myocardium

   C. Fibrous pericardium

   D. Epicardium

3. The heart valve situated between the left atrium and left ventricle is the _____.

   A. Mitral (bicuspid) valve

   B. Pulmonary semilunar valve

   C. Aortic semilunar valve

   D. Tricuspid valve

4. The layer of a blood vessel that is continuous with the endocardial lining of the heart and is in direct contact with blood is the _____.

   A. Tunica media

   B. Tunica interna (intima)

   C. Tunica externa

   D. Vasa vasorum

5. The blood vessels that carry oxygenated blood from the lungs to the heart are the _____.

   A. Superior vena cava

   B. Pulmonary veins

   C. Pulmonary arteries

   D. Aorta

6. Which type of capillary is the MOST permeable and is typically found in the liver, bone marrow, and spleen?

   A. Fenestrated

   B. Thoroughfare channel

   C. Continuous

   D. Sinusoid

7. Which of the following is NOT a lymphatic organ?

   A. Tonsil

   B. Spleen

   C. Thymus

   D. Liver

8. The lymphatic organ responsible for the removal of aged and defective blood cells is the _____.

   A. Lymph node

   B. Spleen

   C. Tonsil

   D. Thymus

9. Which of the following is NOT a function of the lymphatic system?

   A. Maintaining fluid balance

   B. Absorbing fats

   C. Producing movement

   D. Protecting the body against infection

10. The function of the ciliated cells of the respiratory epithelium is to _____.

    A. Secrete mucus

    B. Secrete surfactant

    C. Trap inhaled particles

    D. Move mucus and trapped particles upward

11. A person with a spinal cord injury between C3 and C4 is MOST likely to _____.

    A. breathe normally with paralysis of lower limbs

    B. breathe normally with paralysis of all limbs

    C. be unable to breathe and have paralysis of all limbs

    D. breathe using intercostal muscles only

12. The walls of the following structures are all supported by cartilage EXCEPT

    A. Larynx

    B. Trachea

    C. Bronchi

    D. Respiratory bronchioles

13. Which structures constitute the upper respiratory tract?

    A. Larynx, epiglottis and bronchi

    B. Trachea, bronchi and bronchioles

    C. Nose, pharynx and larynx

    D. Alveoli and pleura

14. Which of the following processes is NOT part of mechanical digestion?

    A. Mastication

    B. Peristalsis

    C. Hydrolysis

    D. Segmentation

15. Which type of gastric cell produces hydrochloric acid?

    A. Mucous neck cells

    B. Parietal cells

    C. G cells

    D. Chief cells

16. Which of the following glands is an accessory organ of the digestive system?

    A. Gastric glands

    B. Salivary glands

    C. Gallbladder

    D. Adrenal glands

17. Which liver cells are responsible for producing bile?

    A. Acini

    B. Hepatocytes

    C. Kupffer cells

    D. Sinusoids

18. Which of the following is part of the endocrine system?

    A. Thalamus

    B. Salivary glands

    C. Pancreatic islets

    D. Spleen

19. Which structure is composed of glandular epithelial tissue?

    A. Anterior pituitary

    B. Thalamus

    C. Posterior pituitary

    D. Hypothalamus

20. The pituitary gland consists of the _____.

A. Thalamus and hypothalamus

B. Cortex and medulla

C. Adenohypophysis and neurohypophysis

D. Alpha and beta cells

21. Which hormone is synthesised and released by the anterior pituitary gland?

A. Corticotropin-releasing hormone

B. Gonadotropin-releasing hormone

C. Thyroid-stimulating hormone

D. Growth hormone-releasing hormone

22. Which of the following statements about the renal medulla is CORRECT?

A. It contains all the glomeruli

B. It is the superficial part of the kidney

C. It produces adrenaline

D. It contains the pyramids and columns

23. The nephron consists of _____.

A. Glomerulus, proximal convoluted tubule, loop of Henle and distal convoluted tubule

B. Bowman's capsule, loop of Henle, collecting duct and renal tubule

C. Glomerulus and juxtaglomerular apparatus

D. Juxtaglomerular apparatus and collecting duct

24. The blood vessel that drains blood from the glomerulus after filtration is the _____.

A. Vasa recta

B. Afferent arteriole

C. Efferent arteriole

D. Efferent vein

25. The centre of the kidney where urine collects before leaving the kidney is the _____.

A. Distal tubule

B. Renal pelvis

C. Glomerulus

D. Proximal tubule

26. Where are the male ejaculatory ducts located?

A. In the testicles

B. In the penis

C. Between the bulbourethral glands and the urethra

D. At the end of the vas deferens

27. After ejaculation, sperm pass through the female reproductive tract in which order?

A. Vagina → cervix → uterus → fallopian tube

B. Cervix → urethra → uterus → fallopian tube

C. Vagina → uterus → fallopian tube → ovary

D. Cervix → vagina → uterus → fallopian tube

28. A parasagittal plane divides the body into _____.

A. superior and inferior portions

B. anterior and posterior portions

C. equal right and left sides

D. unequal right and left sides

29. The anatomical term referring to the inferior surface of the foot is _____.

A. dorsum

B. proximal

C. palmar

D. plantar

30. Pseudostratified columnar epithelium is classified based on the fact that _____.

A. the apical cells are flat

B. all cells attach to the basement membrane but nuclei are at different levels

C. the cells change shape

D. all cells reach the surface

31. Which epithelial tissue is specialised for rapid diffusion and filtration?

A. Simple squamous

B. Pseudostratified ciliated columnar

C. Simple cuboidal

D. Stratified columnar

32. The bone cell housed in a lacuna and responsible for maintaining bone matrix is the _____.

A. osteoprogenitor cell

B. osteoblast

C. osteoclast

D. osteocyte

33. The largest bone in the lower limb that articulates with the acetabulum is the _____.

A. tibia

B. femur

C. patella

D. fibula

34. The galea aponeurotica connects the frontalis muscle to the _____.

A. buccinator

B. occipitalis

C. temporalis

D. orbicularis oculi

35. The segmented appearance of the rectus abdominis is produced by _____.

A. linea semilunaris

B. linea alba

C. thoracolumbar fascia

D. tendinous intersections

36. The medulla oblongata, pons and midbrain together form the _____.

A. diencephalon

B. cerebellum

C. brainstem

D. cerebrum

37. The second layer of the spinal meninges is the _____.

A. pia mater

B. dura mater

C. meninx mater

D. arachnoid mater

38. Which photoreceptor cells are responsible for colour vision and visual acuity?

A. Ganglion cells

B. Rods

C. Cones

D. Bipolar cells

39. In which order do sperm travel from the testes to the urethra?

A. Seminiferous tubules → epididymis → vas deferens → ejaculatory ducts

B. Epididymis → ejaculatory ducts → seminiferous tubules → vas deferens

C. Vas deferens → seminiferous tubules → epididymis → ejaculatory ducts

D. Ejaculatory ducts → seminiferous tubules → epididymis → vas deferens

40. Which of the following is NOT a secondary sex characteristic?

A. Pubic hair

B. Thicker vocal cords

C. Penis

D. Adult male body shape

SECTION B (Total: 60 marks)

Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

The lymphatic system and cardiovascular system work closely to maintain fluid balance and immune defense in the human body.

(a) Define lymph and state TWO (2) of its main functions.

(4 marks)

(b) Describe the internal anatomical features of the right atrium and right ventricle.

(6 marks)

(c) Analyse how the structural organisation of the lymphatic system supports fluid balance and immune protection in the human body.

(10 marks)

Question 2

The digestive system is structurally organised to carry out digestion and absorption, while the respiratory system provides a passage for air movement.

(a) Define the alimentary canal and state its overall extent in the human body.

(4 marks)

(b) Describe the main anatomical components of the respiratory tract, from the nasal cavity to the lungs.

(4 marks)

(c) Using a cross-section of the gastrointestinal tract wall, describe each layer and explain how its structure supports digestive function.

(12 marks)

Question 3

The urinary system is structurally organised to allow urine formation and transport, while the endocrine system consists of specialised glands distributed throughout the body.

(a) State TWO (2) functions of the urinary system.

(4 marks)

(b) Describe the gross anatomical structure of the kidney, including its major regions.

(4 marks)

(c) Using a labelled cross-section of the kidney, describe the classification of nephrons and explain how their structural features relate to their location within the kidney.

(12 marks)

Question 4

The reproductive system in humans is organised into distinct anatomical components in males and females, each contributing to reproductive function. These components include structures with specialised roles that are relevant to the study of human anatomy.

(a) Analyse the structural organisation of the male reproductive system by classifying it into its major components and explaining how these components work together to support reproductive function.

(10 marks)

(b) Classify the female reproductive system into internal and external organs and describe one function of each group.

(6 marks)

(c) Differentiate between an exocrine gland and an endocrine gland based on the flow path of their secretory products, and give one example of a secretion for each type.

(4 marks)

END OF EXAMINATION PAPER