

SCHOOL OF HEALTH AND NATURAL SCIENCES

EXAMINATION FOR THE DIPLOMA IN NURSING YEAR 1

SUMMATIVE EXAMINATION (SEMESTER 1)

ACADEMIC SESSION 2010; SEMESTER 1

SND 1205: ANATOMY AND PHYSIOLOGY 1

AUGUST 2010

TIME: 2 Hour

INSTRUCTIONS TO CANDIDATES

This question booklet contains two sections.

Section A

Sixty multiple choice questions (MCQ)

Answer ALL questions in Section A using the multiple choice answer sheet provided.

Section B

Three Short Answer Questions (SEQ)

Answer ALL questions in Section B using the answer booklets provided.

At the end of the examination, all the answer booklets, multiple choice answer sheets and the examination booklet must be fastened together to be placed in the box provided.

[This paper contains SIXTY MCQ and
THREE SEQ questions printed on ELEVEN pages

Part A: 60 Mark

Answer ALL questions

1. The levels of organization within the human body from simplest to most complex are
 - A. Chemical, cells, tissues, organs, systems, organism
 - B. Chemical, tissues, systems, cells, organs, organism
 - C. Cells, organs, organism, chemical, tissues, systems
 - D. Organism, systems, organs, tissues, cells, chemical

2. The maintenance of a relatively stable internal environment with only slight deviations within a normal range is called
 - A. Metabolism
 - B. Anabolism
 - C. Catabolism
 - D. Homeostasis

3. The directional terms that are **NOT** correctly paired as opposites are
 - A. Lateral/medial
 - B. Superficial/parietal
 - C. Anterior/posterior
 - D. Proximal/distal

4. The plane that divides the brain into right and left portions is
 - A. Transverse
 - B. Frontal
 - C. Sagittal
 - D. Horizontal

5. The following pairs of cavities that are separated by the diaphragm is
 - A. Ventral cavity and dorsal cavity
 - B. Thoracic cavity and abdominopelvic cavity
 - C. Thoracic cavity and dorsal cavity
 - D. Cranial cavity and spinal cavity

6. Transport processes that require carrier molecules and cellular energy are called
 - A. Passive transport
 - B. Pinocytosis
 - C. Filtration
 - D. Active transport

7. A gland that has a single, unbranched duct and an enlarged, rounded secretory portion is classified as
- A. Simple tubular
 - B. Simple acinar
 - C. Compound tubular
 - D. Compound acinar
8. A gland that secretes a thin, watery product while the secretory cells remain intact is a _____ gland.
- A. Holocrine
 - B. Apocrine
 - C. Merocrine
 - D. Endocrine
9. The following are characteristic of collagenous fibers **EXCEPT**
- A. Elasticity
 - B. Strong and durable
 - C. Contain the protein collagen
 - D. Found in intercellular material of connective tissue
10. The layer of the epidermis that is present only in thick skin is the stratum
- A. Basale
 - B. Spinosum
 - C. Granulosum
 - D. Lucidum
11. Fingerprints are due to
- A. Projections of the stratum corneum
 - B. Papillae in the stratum basale
 - C. Arrangement of papillae in the dermis
 - D. Direction of collagen fibers in the dermis
12. The thickened region that is responsible for nail growth is the
- A. Lunula
 - B. Nail bed
 - C. Nail root
 - D. Nail matrix

13. The uppermost layer of the dermis is the _____ layer.

- A. Reticular
- B. Sensory
- C. Papillary
- D. Pigmented

14. The layer of the skin that produces hair is the

- A. Stratum corneum
- B. Stratum basale
- C. Reticular layer of dermis
- D. Papillary layer of dermis

15. The spaces that contain osteocytes are called

- A. Lamellae
- B. Lacunae
- C. Canaliculi
- D. Trabeculae

16. Plates and bars of bone tissue that surround irregular spaces containing red bone marrow are called

- A. Trabeculae
- B. Lamellae
- C. Perforating canals
- D. Canaliculi

17. The type of bone that forms the diaphysis of a long bone is _____.

- A. Intramembranous
- B. Compact
- C. Cancellous
- D. spongy

18. In a mature long bone, the diaphysis is separated from the epiphysis by the

- A. Articular cartilage
- B. Epiphyseal line
- C. Periosteum
- D. Epiphyseal plate

19. The ability of muscle tissue to return to its original shape after contraction or extension is called

- A. Excitability
- B. Elasticity
- C. Extension
- D. Tetanus

20. The muscle fibers of a skeletal muscle are arranged in small groups or bundles called

- A. Motor units
- B. Fascicule
- C. Sarcomeres
- D. Myofibrils

21. The number of bones in the axial skeleton

- A. Varies according to the size of the individual
- B. Is usually 80
- C. Is greater than the number in the appendicular skeleton
- D. Includes 14 bones in the cranium and 8 in the face

22. The bone of the axial skeleton that does not articulate with any other bone, but is suspended by ligaments is the

- A. Inferior nasal conchae
- B. Zygomatic bone
- C. Hyoid bone
- D. Auditory ossicles

23. The bone on the lateral side of the forearm is the

- A. Humerus
- B. Fibula
- C. Ulna
- D. Radius

24. An immovable joint is called

- A. Synarthrosis
- B. Diarthrosis
- C. Amphiarthrosis
- D. Synovial joint

25. The bone that forms the heel is the

- A. Femur
- B. Calcaneus
- C. Talus
- D. Medial malleolus

26. The normal pH of blood is

- A. 7-8
- B. 7.5-7.6
- C. 7.35-7.45
- D. 7.25-7.35

27. The primary function of fibrinogen is

- A. Lipid transport
- B. Oxygen transport
- C. Immunity
- D. Blood clotting

28. Erythrocyte production is regulated by a hormone that is produced by the kidney called

- A. Renal erythropoietic factor
- B. Erythropoietin
- C. Erythropoietic stimulating hormone
- D. Growth hormone

29. Most lymphatic vessels drain into the

- A. Thoracic duct
- B. Right lymphatic duct
- C. Inferior vena cava
- D. Right subclavian vein

30. The chamber of the heart that normally has the thickest myocardium is the

- A. Right atrium
- B. Left atrium
- C. Right ventricle
- D. Left ventricle

31. The name of the innermost layer of blood vessels is
- A. Tunica externa
 - B. Tunica media
 - C. Tunica intima
 - D. Adventitia
32. Most of the pressure that moves blood through the arteries is provided by
- A. Skeletal muscle action
 - B. Contraction of the heart
 - C. Contraction of smooth muscle in vessel walls
 - D. Valves that prevent backflow
33. When baroreceptors are stretched due to a sudden increase in blood pressure, the central nervous system responds by sending out impulses that _____ heart rate and cause _____.
- A. Increase, vasoconstriction
 - B. Decrease, vasoconstriction
 - C. Increase, vasodilation
 - D. Decrease, vasodilation
34. All of the following are part of the upper respiratory tract EXCEPT
- A. Nasal cavities
 - B. Nasopharynx
 - C. Trachea
 - D. Oropharynx
35. The openings from the nasal cavity into the pharynx are called
- A. External nares
 - B. Nostrils
 - C. Internal nares
 - D. Fauces
36. The largest cartilage of the larynx, commonly called the Adam's apple, is the
- A. Epiglottis
 - B. Thyroid
 - C. Cricoid
 - D. Arytenoid

37. The ridge of hyaline cartilage that reinforces the region of bifurcation of the trachea is called the

- A. Uvula
- B. Carina
- C. Fauces
- D. Nares

38. The type of tissue in the alveoli is

- A. Simple squamous epithelium
- B. Stratified squamous epithelium
- C. Loose connective tissue
- D. Pseudostratified columnar epithelium

39. The visceral pleura is a

- A. Mucous membrane that is firmly attached to the surface of the lung
- B. Mucous membrane that lines the wall of the thorax
- C. Serous membrane that is firmly attached to the surface of the lung
- D. Serous membrane that lines the wall of the thorax

40. The collapse of alveoli during expiration is prevented by the

- A. Positive pressure in the pleural cavity
- B. Elastic recoil of the alveoli
- C. Thin film of serous fluid that lines the alveoli for lubrication
- D. Thin film of surfactant that lines the alveoli

41. Normal tidal volume is about _____ ml.

- A. 500
- B. 1200
- C. 3100
- D. 4600

42. Internal respiration is the

- A. Exchange of gases between the alveoli and the atmosphere
- B. Exchange of gases between the alveoli and the pulmonary capillaries
- C. Exchange of gases between the tissue capillaries and tissue cells
- D. Transport of gases from the lungs to the tissues

43. Which one of the following is an accessory organ of the digestive tract?

- A. Pharynx
- B. Stomach
- C. Small intestine
- D. Pancreas

44. Mechanical digestion begins in the mouth with
- A. Hydrolysis
 - B. Mastication
 - C. Deglutition
 - D. Peristalsis
45. The layer of the wall of the gastrointestinal tract that contains the blood vessels and nerves is the
- A. Mucosa
 - B. Submucosa
 - C. Muscular layer
 - D. Serosa
46. The largest of the salivary glands is normally the
- A. Sublingual gland
 - B. Submandibular gland
 - C. Submaxillary gland
 - D. Parotid gland
47. Salivary amylase catalyzes the
- A. Starches into maltose
 - B. Starches into glucose
 - C. Proteins into polypeptides
 - D. Proteins into amino acids
48. Which of the following is the correct sequence for the passage of food after it is swallowed?
- A. Pharynx, larynx, esophagus, stomach
 - B. Larynx, pharynx, esophagus, stomach
 - C. Larynx, esophagus, pharynx, stomach
 - D. Pharynx, esophagus, stomach
49. Regurgitation of stomach contents into the esophagus is prevented by the
- A. Upper pyloric sphincter
 - B. Gastro esophageal sphincter
 - C. Lower esophageal sphincter
 - D. Lower fauces

50. The muscular layer of the stomach wall consists of an
- A. Inner longitudinal and outer circular layer
 - B. Inner longitudinal layer, outer circular layer, and a third oblique layer which is outermost
 - C. Outer longitudinal layer, inner circular layer, and a third oblique layer which is outermost
 - D. Outer longitudinal layer, inner circular layer, and a third oblique layer which is innermost

51. All of the following are produced in the small intestine EXCEPT
- A. Trypsinogen
 - B. Maltase
 - C. Secretin
 - D. Sucrase

52. The outer muscle layer of the large intestine is incomplete and is collected into three bands of muscle called
- A. Haustra
 - B. Teniae coli
 - C. Plicae circulares
 - D. Plicae musculares

53. Fatty substances in chyme are emulsified by
- A. Bilirubin
 - B. Bile salts
 - C. Bile pigments
 - D. Cholesterol in bile

54. Gallbladder contraction is stimulated by
- A. Cholecystokinin
 - B. Secretin
 - C. Gastrin
 - D. Sympathetic nerve impulses

55. The capillary complex within the renal corpuscle is the
- A. Glomerular capsule
 - B. Glomerulus
 - C. Nephron loop
 - D. Peritubular capillary

56. The juxtaglomerular cells of the juxtaglomerular apparatus are specialized cells in the

- A. Ascending limb of the nephron loop
- B. Macula densa
- C. Afferent arteriole
- D. Efferent arteriole

57. The smooth muscle in the wall of the urinary bladder is the

- A. Sphincter muscle
- B. Detrusor muscle
- C. Cremaster muscle
- D. Dartos muscle

58. The openings for the ureters and urethra form a triangular area on the floor of the bladder that is called the

- A. Pyramid
- B. Detrusor area
- C. Prostatic area
- D. Trigone

59. An enzyme produced by the kidneys is

- A. Angiotensin
- B. Catalase
- C. Renin
- D. Erythropoietin

60. The volume of filtrate formed in a 24 hour period is about

- A. 180 gallons
- B. 2 liters
- C. 125 liters
- D. 180 liters

Part B: 20 mark
Answer ALL parts

1. List the **FIVE** types of synovial joint with example (5 mark)
2. Explain **THREE** phases of urine formation (7 mark)
3. Explain the flow of blood in the pulmonary circulation (8 mark)