Philadelphia University

Faculty of Nursing

[Human Physiology/ Theory]

[Summer Semester] - [2024/2025]

[Final Exam]

Date of the exam: [6/9/2025]　　　　　　**Duration of the exam: [90 minutes]**

Student Data			
Student's Name:			
Student's University Number:			
Examiner (s)			
Name/Title of Examiner: [Dr. Muamar Al- Dalaeen]			
Questions			
Type of Questions	Number of Questions	Assigned Marks	Obtained
MCQs	34	34	
Essay questions	6	6	
Total	**40**	**40**	

Program outcome competencies (JNC+HEAC)	Questions covering the competency	Number of questions covering the competency	Percentage of questions covering the competency	Targeted percentage of the competency
1. Safe & effective care environment	Q3-8-16-18-19-20-21-27-30-31-29-34-40	13	32%	25 – 35%
2. Health promotion/prevention and maintenance	Q6-10-37-33-39	5	13%	10 – 15%
3. Physiological integrity	Q1-4-9-11-15-17-22-23-24-26-28-32-38-25	14	35%	25 – 35%
4. Psychosocial integrity	Q12-13-14-35	4	10%	5 – 10%
5. Global health and health economics	Q7-2-5-36	4	10%	5 – 10%
Total	**40**	**40**	**100%**	**100%**

Number	CLO	Questions covering the CLO	Number of questions covering the CLO	Percentage of questions covering the CLO
K1		Q1,Q7, Q22,Q23,Q24,Q38	6	13%
K2		Q8,Q10,Q12,Q13,Q14,Q15,Q16,Q19,Q25 Q26.Q27.Q28,Q29,Q30,Q34,Q 36, Q37	17	44.5%
S1		Q7,Q5,Q33,Q39	4	10%
S2		Q3,Q17,Q27,Q32,Q40	5	12.5%
S3		Q18,Q35	2	4.0%
S4				
C1		Q12,Q20,Q21	3	4.0%

C2		Q6,Q9,Q11,Q31	4	4.0%
C3		Q30	1	1.0%
Total				**100%**

Answer Sheet

Kindly write down your answers in the following answer sheet.

Question #	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Answer										

Question #	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
Answer										

Question #	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
Answer										

Question #	31.	32.	33.	34.
Answer				

Question #	35.	36.	37.	38.
Answer				
Question #	39.	40.	41.	42.
Answer				

1. Which of the following correctly describes the difference between arterial and venous blood?

A. Arterial blood is dark red, venous blood is bright red

B. Arterial blood contains more white blood cells

C. Arterial blood is bright red, venous blood is dull red

D. There is no color difference between arterial and venous blood

2. What stimulates erythropoiesis?

A. Thrombopoietin

B. Erythropoietin

C. Interleukins

D. Heparin

3. In the blood clotting process, what is converted to thrombin?

A. Fibrinogen

B. Prothrombin

C. Plasmin

D. Heparin

4. What type of anemia results from bone marrow destruction?

A. Iron deficiency anemia

B. Pernicious anemia

C. Aplastic anemia

D. Sickle cell anemia

5. Which of the following is NOT an essential nutrient that must be obtained from dietary sources?

A. Essential amino acids

B. Essential fatty acids

C. Glucose

D. Vitamins and minerals

6. How do villi increase the absorption capacity of the small intestine?

A. By secreting additional digestive enzymes

B. By increasing the surface area for absorption

C. By storing nutrients temporarily

D. By producing more gastric acid

7. Which structure controls the flow of digestive juices into the duodenum?

A. Pyloric sphincter

B. Sphincter of Oddi

C. Cardiac sphincter

D. Ileocecal valve

8. Which layer of the GI tract contains the submucosal plexus (Meissner's plexus)?

A. Mucosa

B. Submucosa

C. Muscularis

D. Serosa

9. The Blood Brain Barrier (BBB) consists of:

A. Only tight junctions between cells

B. Astrocytes and neurons

C. Astrocytes, endothelial cells, and tight junctions

D. Endothelial cells and neurons only

10. The medulla oblongata contains centers for all <u>EXCEPT</u>:

A. Cardiac control

B. Visual processing

C. Respiratory control

D. Vasomotor control

11. Which structure connects the two cerebral hemispheres?

A. Thalamus

B. Corpus callosum

C. Hypothalamus

D. Pons

12. Basal nuclei are responsible for:

A. Producing cerebrospinal fluid

B. Controlling involuntary muscle movements only

C. Controlling voluntary muscle movements

D. Generating sensory information

13. Damage to Wernicke's area results in:

A. Complete muteness

B. Loss of motor control

C. Fluent but meaningless speech

D. Loss of visual perception

14. According to Boyle's law, what happens during inspiration?

A. Pressure increases as volume increases

B. Pressure remains constant as volume changes

C. Pressure decreases as volume increases

D. Volume remains constant as pressure changes

15. What is the tidal volume in a typical adult?

A. 1200 ml

B. 3000 ml

C. 500 ml

D. 1300 ml

16. Which respiratory center promotes inspiration?

A. Pneumotaxic center

B. Apneustic center

C. Medullary center

D. Peripheral center

17. Which of the following is the correct composition of hemoglobin?

A. 2 alpha-chains and 3 beta-chains

B. 3 alpha-chains and 2 beta-chains

C. 2 alpha-chains and 2 beta-chains

D. 3 alpha-chains and 3 beta-chains

18. What enters through the renal hilus?

A. Only the ureter

B. Only blood vessels

C. Renal artery, nerves, and lymphatics

D. Only lymphatic vessels

19. Which structure prevents large molecules from escaping into the filtrate?

A. Fenestrations of 40-100nm in diameter

B. Macula densa

C. Collecting duct

D. Loop of Henle

20. Where does renal gluconeogenesis take place?

A. Renal medulla

B. Renal cortex

C. Collecting ducts

D. Loop of Henle

21. What structure is formed by the combination of the glomerulus and Bowman's capsule?

A. Nephron

B. Malpighian body

C. Collecting duct

D. Loop of Henle

22. What distinguishes arteries from veins in terms of their structure?

A. Arteries have thinner walls than veins

B. Arteries have a smaller middle layer than veins

C. Arteries have a thicker wall due to a larger middle layer

D. Arteries and veins have identical wall thickness

23. Which wave in an ECG represents atrial depolarization?

A. T wave

B. QRS complex

C. P wave

D. U wave

24. How is cardiac output calculated?

A. Heart rate divided by stroke volume

B. Stroke volume times heart rate

C. Heart rate minus stroke volume

D. Stroke volume divided by heart rate

25. Which type of neurons carry impulses from receptors to the CNS?

A. Motor neurons

B. Interneurons

C. Sensory neurons

D. Association neurons

26. Which structure is responsible for producing myelin in the peripheral nervous system?

A. Oligodendrocytes

B. Astrocytes

C. Schwann cells

D. Ependymal cells

27. What distinguishes white matter from gray matter?

A. Location in the brain

B. Presence of myelinated axons

C. Number of synapses

D. Amount of blood flow

28. A synapse that occurs between a neuron and a muscle cell is called:

A. A neural junction

B. A synaptic cleft

C. A neuromuscular junction

D. A myelin junction

29. What triggers the release of ADH (Antidiuretic Hormone)?

A. Decreased blood glucose levels

B. Increased blood calcium levels

C. Increased blood osmolality

D. Decreased blood pressure only

30. How does the pineal gland respond to light exposure?

A. Increases melatonin secretion

B. Inhibits melatonin secretion

C. Has no effect on hormone production

D. Increases serotonin only

31. What is the relationship between ACTH and the adrenal cortex?

A. ACTH inhibits cortisol production

B. ACTH stimulates aldosterone only

C. ACTH stimulates glucocorticoid secretion

D. ACTH has no effect on the adrenal cortex

32. How does atrial natriuretic hormone (ANH) affect blood pressure?

A. Increases aldosterone secretion

B. Promotes sodium retention

C. Causes sodium excretion

D. Stimulates thirst

33. Which chemical messenger causes vasodilation?

A. Endothelin

B. Epinephrine

C. Nitric oxide

D. Norepinephrine

34. Which hormone class is correctly matched with its example?

A. Amines - Insulin

B. Steroids - FSH

C. Glycoproteins - Melatonin

D. Proteins - Growth hormone

Part 2:

Fill in the blank

35. Which plasma protein maintains blood osmotic pressure? …………………………

36. In Parkinson's disease, which neurotransmitter is deficient? …………………….

37. Where are the central chemoreceptors located? ……………………………….

38. Which hormone stimulates passive water reabsorption? …………………………………..

39. Which condition results from damage to the cerebellum? ……………………..

40. How many pairs of spinal nerves are there in total? …………………………………..

41. Which hormone is responsible for milk letdown in mammary glands? …………………

42. Which system slows down heart rate? …………………………………………..

Good luck